

Coraci

Dakar,
Sept. 22, 1985

Going out to road to Yumboul. Same area visited
in 1976-77.

NOTE: This probably will be a wet year. Rains began early
(June 21st, I think). There has been quite a lot of rain in the last few
days. Everything looks very green.

Arrive at beginning of road 9:00 a.m. Overcast. Windy. Relatively cool.

Series of single notes in distance. Redbills?
Hear den Rattles while driving along road. Series after series.
Bird perhaps in reproductive mood.

Blackbill crosses road.

Hornbill polysyllabic notes in distance. Doublets or Triplets.
NOTE: I have not yet regained my ability to distinguish between
the sounds of Redbills and Blackbills.

Back to area where presumed Sen heard earlier 9:40. More
Rattles. Each series slows down slightly - and also descends in pitch -
as it continues. No terminal "flourishes" or "slurs".

Then bird shuts up. A few seconds later, we finally see it.
Perched 3 ft up dead bush.

Makes several flights to ground. To catch prey. Apparently
successful. Flights are silent. Twice does Wing spread on returning
to perch. Silent. No TV.

Bird apparently alone.

Just sits 12 ft up. Exposed branch of Acacia.

Flies away silently 9:48. Hear more R's in distance.

Nothing more of interest in the next 3/4 hour.

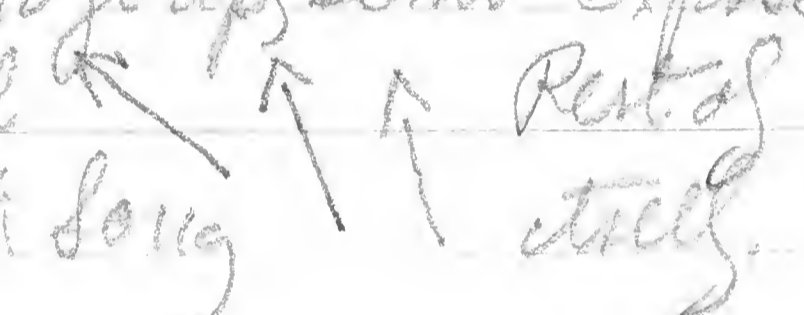
Coraciiformes

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Dakar

Sept. 24, 1985

Going back to same area (road to Yenniboul) this morning. Early. Arrive 6:30 a.m. Just getting light. Weather clear.

Immediately hear 2 Sens "Singing". In Baobabs on either side road 100 m. apart. Song phrases consist of Intro ("Cheep" or "Tait") - R. Only a very few phrases without Intro. One ind. Sings more frequently than the other. Only one or two minor overlaps. See the ind. that sings most frequently. 40 ft up, semi-exposed. Most of the time in semi-st. Head and bill  Rest of body ritualized. Extreme st. is usually with song. Sometimes maintained between phrases.

There may be a 3rd few vocalizing several hundred m. away. All Sens ignore hornbill sounds.

First stretch of song lasts about 10 mins. Then inds start to move around.

One ind. vocalizes from time to time. Long R's. Fluctuating. Apparently without Intros.

6:44. 2 inds very brief encounter between two Sens. Low in Acacia. With some sort of R. Just partially cop. attempt.

One Sens certain Guttural R (no Intro?) when Redbill lands in same tree. Then sits.

All quiet among Sens 6:49.

NOTE. Almost certainly none of these birds is the ind. heard and seen 2 days ago.

Lots of Long tailed Starlings around. Not mixed flocks.

7:01. Two Sens land close together (8") in limb of Baobab. No display or greeting of any sort. Presumed ♂ below presumed ♀. Then "♂" hops a few inches nearer. No response by ♀. ♂ sits.

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looking around rather uneasily. Does 4 or 5 WF's at irregular interval. Then "♂" flies off. Catches large insect in air or in branch. Back to "♀" immediately. Again no display or Greeting. "♂" batters insect in usual way. Swallows it. Then both birds sit as before. Then both fly off. Silent.

7:16. See single den perched silently in far Acacia across road. Probably not member of (same) pair. D.E. Burst of song at dawn probably was territorial encounter.

This bird utters a few Intro-R phrases.

I write. When I look up there are 2 inds, pair, in Acacia. And another ind, alone, in another Acacia 75 m. away. Pair seems calm. Single ind is nervous. Does WF's. Also at least 3 brief Wingspreads. All quite silent. Facing opponents.

Then general chaos. Aerial chasing. Display. 50-150 ft in air. Normal Wingbeats. Lots of Intro-R's. Intros particularly loud and conspicuous. Obviously 2 pairs involved. Course of flight is often roughly circular. But very roughly.

Then one pair lands. Inds together. In low Acacia. Definite Greeting this time. R's (with Intro?). One ind does extreme, rather prolonged Wingspread with R. Facing away from partner. Then both sit. Fly away.

During next few minutes there is some moving about among several pairs. Some Greeting. No aerial display.

There may be at least 4 pairs in area. Population is dense. Possibly coming into breeding condition.

7:34. Several feeding flights to ground. Mostly by "♂"s? Silent. Feeder usually flies back to land by partner. At least once, R as Greeting. No Intro. No Wingspread.

No attempts to pass food to partner. Breeding season probably just beginning in earnest.

7:45. Inds have begun to perch apart from one another. Do a lot


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of quiet preening.

Keeping close together may be real, intensive courtship.

Upupa appears 7:49. Silent. Apparently ignored by Lens.

Some more Intro-R's 7:51. By "♂" member of pair high in Baobab. Once answered by mate low in Acacia 150 m away. Answer takes form of "fluctuating"  R. No Intro.

Intros must be strongly hostile. More so than R's per se.

NOTE: Habitat is mixed. Grass fields, fields of Okra (in bloom now). Scattered bushes and trees: Acacias and Baobabs for perching sites. Most feeding on bare earth between Okra plants.

O says that tail vibrates during R's of Lens.

7:58. Two Long-tailed Glossy Starlings and one Redbill fly out together from Acacia. Beginning of mixed flock ???

Stopping 8:00 a.m.

COMMENT. Is this group of Lens perhaps a "breeding colony"? Could it be a form of monitoring? Is it partly equivalent, functionally, to the "morning assemblies" of some hornbills?

Dakar,
Sept. 25, 1985

Returning to same area this morning.

Arrive 6:37 a.m. Clear and calm. Lens are silent.

On the way here - 1/4 mile away - we heard a single lens swinging Intro-R phrases.

Redbills are already in full voice in distance.

Local Lens are still silent 6:45. Yesterday's burst of singing may have been a territorial dispute. Possibly the birds have their territories more firmly established now?

Then see pair of Lens in Acacia 3 ft apart. Silent. Then one flies down to ground to feed. Utters long R (no Intro) in flight as it

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goes down. Then flies away silently to distant Acacia.

6:58. Another Sen in Acacia across road. Sitting silently. Then utters one Intro-R phrase. Apparently as reaction to Redbill landing in same tree.

Redbill starts to vocalize. Classical performances. Series of triplets, gradually getting louder (bill opened slightly throughout), culminating in Triplets, Wings raised, Bouncing (little or no additional bill movements). Obviously in response to distant ind. who is vocalizing in same way. Phrases overlapping at "random". Mate? Distant bird flies away. Near bird follows.

O photos near bird during display.

There was one long by distant Sen while the Redbills were vocalizing.

Then catch brief glimpse of brief aerial chase involving 3 Senses. 2 of the birds involved land close together in Acacia. One does Wing spread with R, back to partner.

A few minutes later, 7:15, these birds become involved in aerial chasing with 2 other inds. Irregular looping back and forth. Normal fast wing beats. Lots of Intro-R's. Intros loud.

All this occurred in same area as aerial performance yesterday. Presumably same individuals.

NOTE: these aerial displays may conceivably be more purely hostile than some of the aerial displays of Asian Halcyon.

7:25. Now there is one Sen sitting quietly in near Acacia, and one pair sitting quietly in distant Acacia.

There seem to be only 4 Senses, 2 pairs, in this area now.

One Sen lands near another. Does Wing spread after landing. Facing partner. But these birds are almost certainly mates. Wing spread apparently silent.

Now 2 pairs sitting in different Acacias 10m. apart.

Then aerial chasing begins. Initiated by one ind. of one pair.

Cornell, Sept. 25, 1985, III.

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Flies toward other pair. R in flight. Then turns away. Pair rises in pursuit. Chasing back and forth. Lots of Intro-R's. One ind. peels off. Does several Semi-Swoops with accelerated flight.

7:40 All quiet again. But pairs obviously keeping a close watch on one another.

I sees one ind join mate. Mutual Wingspread, facing away from one another, with R.

7:45 Now there are only 2 inds. visible. Obviously, members of different pairs. In usual trees. I.E. members of same pair do not always stay close together as day wears on and general activity decreases.

One ind. flies across road to another Acacia. Lands silently but does extreme Wingspread. Definitely alone. Sets.

Hooper flies into Acacia. Apparently displaces her a few inches. The 2 birds sit 1 ft apart. Apparently not friendly. Both silent. Hooper spreads wing repeatedly. Then she flies away.

Single Sen ignores flock of Long-tailed Glossy Starlings in same Acacia.

Group of 3 Purple Martins fly silent.

O photos pair Redbills on dead palm trunk. Presumably nesting. As in '76.

Packing up 8:15 a.m.

One ind utters series of songs high in Baobab. Presumably advertisement. Then shuts up.

Pairs seem to be far apart now. Presumably finished with their boundary dispute for the time being.

Then brief aerial chase. Only 2 inds. involved at first. Lots of Intro-R's. Then 3rd ind joins in. Then settle down again.

One ind. flies into Baobab. Apparently alone. Makes one little circular flight with Intro-R.

NOTE. Just to make everything clear... What I have been calling

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"Song" is exactly equivalent to (one) Intro-R phrase. (I realize that I have tended to use different terms simply according to circumstances.)

NOTE. Talking to Josh Pasner this evening. Perhaps I have mis-identified some crops in the fields which attract Ss. The supposed Okra may, in fact, be "bitter" aubergine. The supposed peanuts may be chick peas (a crop being encouraged now).

QUESTION. Why aren't there any Mals around the Refuge-
Yenniboul area? Or, alternatively, why aren't there any striped King-
fishers (*H. chelicuti*)? Or even Gray-headed Kingfishers (*H.*
leucocephala)? All these kingfishers seem to be remarkably allopatric,
in one way or another.

Dakar,

Sept. 28, 1983

Arrive usual road to Yenniboul area 6:32 a.m. Heavy
overcast (lots of rain ca 4:30 a.m.).

Single Ss starts to Sing, Intro-R's, immediately. Apparently
not answered by mate or neighbors. Shuts up. Then neighbor does
Sing in distance. Shuts up. Then Song starts in third area. Birds are
not overlapping phrases now. All Song seem to be coming from high
in Baobabs.

Still too dark to see well 6:42.

Ss songs overlap Redbills at random.

Redbills much more common than Blackbills in this area. Also
start to vocalize earlier than Blackbills. I have not seen any morning
assemblies (yet).

All Ss silent 6:44.

6:58. Two Redbills in full "Song display", Wings Raised and
Bouncing, sitting almost side by side in Acacia.

Odds Ss in Acacia 7:01. Alone and silent. 5 ft up. Looking
at ground for prey.

Coracii, Sept. 28, 1983, II

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Blackbill singlets, then full "song" phrases, in distance 7:04.
Another single in distant Acacia. Then some low songs from distant Baobab.

7:20. Quite a lot of Blackbill sounds now. No Redbills. Sings are very quiet indeed.

Redbill starts to vocalize in nearby Acacia. No Blackbills audible at same time. Redbill sounds are interesting. Singlets with occasional "Hiccough"s.

COMMENT: Usual Triplets may be formed by

Light rain 7:22.

7:37. Single low 8 ft up in Acacia starts to sing. Flonal sounds. Little or no lifting of bill. No wing or tail movements. Mate flies in, lands 4 ft away. No greeting. Finger shut up. Flies away a few seconds later. Mate remains. These birds are not in reproductive mood now! Rain seems to have had a depressing effect.

Stopping 7:45 a.m.

NOTES:

I have checked with Josh Posner. The common crops along the road to Gueumboul are Okra and Peanuts.

The local kingfishers (coraciiforms in general) do not seem to perch on wires. Why? Are the local wires too high? Can local prey be taken only from low perches.

Dakar - South
September 29, 1983

Start out from Dakar 8:30 a.m. Arrive Kaolack 1:00 p.m.
It rained heavily before dawn. Rain stopped before we left. Gray overcast, getting lighter as trip progresses.
No birds of interest noted until after M'Bour. Then we saw a

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few single fens on wires. (The birds do use wires here.) Also one roller, Panurgus naevius.

Kacada-South
Sept. 30, 1985

Travelling 6:00 a.m. to 12:30. Nothing much of interest. Only a few (1 and 2) Pied Kingfishers in typical habitats.

Zuiguiher,
Oct. 1, 1985

Going along road to Kolda to old site at Maguis.
Start ca. 6:10 a.m. Still dark. Hear few songs immediately. Both in Zuiguiher and in country. All Intro-R's as at Rufisque. Also hear presumed Mal songs. Series descending Whistles. As it happens, the Mals and fens do not overlap.

Arrive Maguis site itself 6:40. Already quite light. Sky clear. No Coracii audible or visible.

Pond is almost overgrown.

6:54. Hear Mal songs Not clear. A (poorly differentiated) Intro followed by descending series of 4-7 Whistles. Several phrases. Then silence. Bird probably perched in Mangro.

Redbill songs 6:59. No other Coracii audible at time.

7:04. Hear roller(s). I think Eurostoicus ("Lulae"). Series of "Kaaah" Notes, followed immediately by rattling noise. Bird perched 35 ft up in tall tree. Then it chased two birds of prey in next 5 mins. One Black Kite. The other perhaps a Palm Nut Vulture? Chase is fast and agile. No swoops or fairs. Lots of vocs. "Kaaah" Notes, sometimes (not always) twanging. Also Rattling sounds. Usually "Kaaaaaaah". Then bird goes back to tree. Invisible. Probably 2 inds. mmm

Coraci, Oct. 1, 1985, II.

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in tree. Lots of vocs. More "Kaaah"s and Rattling sounds.

All this is less rasping, harsh, or urgent sounding than the Dollar Bird (as I remember it).

Rollers shut up. A few minutes later, Mal sings again. Shuts up. Rollers vocalize again. Redbill singing in distance. Redbill shut up. Rollers continue intermittently.

Yes. There are (at least) two Lelacs Intermittently active. Vocs in tall trees. Both "Kaaah"s and "R"s. Arrangements are variable. One common sequence is 3-4 "Kaaah"s - "R". Also some aerial chasing back and forth. Mostly with "Kaaah"s. Again no swoops or soars.

Rollers fall silent. Mal sings again 17:31. Phrase after phrase. Answered, briefly, by another ind. in distance. Then silence. Then whole burst of "Kaaah" type notes from rollers. Then silence again.

Everything very silent. Then more Mal songs ca 17:50. Quiet again. Rollers seem to have become peaceful.

Leave ca 17:55.

COMMENT. Nothing seems to be in high intensity reproductive mood here. I must check out Sons tomorrow.

Hear a sudden burst of ten songs near hotel 3:45 p.m.

Drive out along road to Ossonge in afternoon. Take side road (district of Bura). Stop 5:45 p.m. Hot, humid and still. Nothing audible but pigeons.

Brief outburst of Yellowbill notes in distance 5:51. Singlets. See single Yellowbill perched high in Fromager. Becoming silent. Leaving 6:05 p.m.

Zuigwichee
Oct. 2, 1985.

Going out to same road to Bura. Arrive 6:25 a.m. Still quite dark. Some bird sounds. Including possibly Mal songs in distance. Then quiet.

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6:31. Burst of few songs, Intros - R's, nearby. All by one individual from trees both sides of road. Then ind. shuts up.

Everything quiet 6:43. Observed, not the breeding for most species.

6:58. Hear a few hoarse "Kaaah" notes which may be by "Lilac" (= Broadbilled) Roller. Not excited. Then a few singlets by Yellowbill in distance. More Yellowbill snarls ca. 7:00. Series of singlets several inds. Not close together. High in trees.

Kingfisher flies overhead. Silent and alone. Apparently Giant.

7:16. Short series few R's. Definitely no Intros. Ind apparently alone. High in Fromager. Shuts up.

Going further down road 7:30.

See fly across road. Silent and alone. Lands in Fromager. Utters a R's. Shuts up.

Single Blackbill flies from Fromager to Fromager. Utters a few singlets-doublets series.

7:40. See 2 Bluebellies perched in bare tree in middle overgrown scrubby field. One 4 ft up. The other 12 ft up. Silent. Just sitting. Obviously pair. Visible dimorphism of size.

Then see another pair Bluebellies 30-40 ft up in Fromager several hundred m. away. Also quiet.

Then see a fifth Bluebelly in another bare tree about 30 ft from first pair. Also sitting. Is this a trio?

First pair does not react when Yellowbill lands silently in same tree. Yellowbill flies on.

Then one member first pair (A) utters one hoarse nasal "Aah" Note when third ind. of "trio" flies down to ground, silent. Then back with insect. Pecks and swallows. Then one A flies over. Lands silently 3 ft from third. Some hopping back and forth. More "Aah" Notes. Also one definite R (long series of very hard and abbreviated "Aah"s - not at all Chatter-like). Then both inds. relax.

Look up a few minutes later to see 4 Bluebellies in this tree.

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Apparently 2 pairs. Members of each pair sitting close together, only inches apart. The pairs themselves are 3 ft apart. Everyone sits.

One of these pairs, the original "A"s, flies back to old tree. Some "Anh"s about this time.

8:03 a.m. Now there are 4 Bluebellies in second bare tree, plus 2 in A tree. All just sitting. Remarkably peaceful.

All ignore people walking by.

Look up to find 3 Bluebellies in each tree. Still silent and peaceful. Is this family group?

8:13. Hear roller-like rattling sounds from top of tall tree some distance away. Back along road. Filac ??? Nearly Bluebellies do not react.

Nor do they react to passing car.

All very still, if still remarkable.

Going to stop work 8:30 a.m.

COMMENT: My terminology for vocs. today seems to conform to the terminology in my (last) index of field notes.

Back at 4:35 p.m., so that I can photo. Very hot and still. And no trace of the Bluebellies.

Yellowbell vocalizing.

NOTE: There is (still) some bare ground in this abandoned field. Doubtless why the Bluebellies are (were) attracted to it.

Leaving 5:05 p.m.

Zinguncho
Oct. 3, 1984

Going back to same, Barru road, area.

Lots of Sen songs along highway out of town. This species may be breeding now.

Arrive site 6:35 a.m. Getting light. Clear and unbroken

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No sign of Bluebellies yet.

Yellowbill sounds.

6:44 Two Bluebellies appear. One in A tree, the other in near tree. Approach certainly was silent. Then one joins the other in near tree. No Greeting. Just sit. Relaxed postures, looking at ground.

Apparently large group, as a whole, did not keep together last night.
6:55. Two more Bluebellies fly in silently, land a few feet apart from one another and from members of first pair. No Greeting. Then one utters soft R. Unritualized posture. All sit. Then 5th ind. flies in. Lands right (4") beside one of the others. No Greeting. All sit.

One makes apparently unsuccessful flight to ground. Back. No display of any sort.

Now there are 2 Bluebellies in A tree, 4 Bluebellies in near tree. All silent. Sitting, unritualized postures.

Another feeding flight to ground. Also silent.

There would appear to be pairs within this group.

Some moving back and forth between perches and trees. No display. Bluebellies also ignore doves, juncos, Crinifer, etc.

Birds perch 4-30 ft up. Usually around 8-10 ft.

7:12. Now most of the birds have disappeared, silently. One on ground. Remains obviously visible.

A second comes back. Provoking Rattle from ind. several hundred ft away! Another comes back. No Greeting.

One Bluebellies lands close by another in A tree 7:24. Very soft muffled "Auk" Notes, soft R. One ind. looks back and forth silently. Then all relax.

It is interesting that there are no fens here. Habitat looks suitable. Are fens excluded by Bluebellies?

Some Rattles 7:31. Can't see what provokes them.

Some of these Rattles must be very low-intensity uttered. And so, of course, are some "Auk"s. Difference between two types of vocs. is

Ceracir, Oct. 3, 1985, II.

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"qualitative" rather than quantitative.

7:35. Now there are 6 Bluebellies visible again. Perhaps 2 pairs and two "outsiders" ???

Several more feeding flycatchers. Silent.

Then one bird makes another feeding flight to ground. Silent going down. Apparently unsuccessful. Goes back to perch with very soft R.

7:45. 5 or 6 Yellowbills fly into large tree at irregular intervals. Mostly silent. Some series of Singlets ("Peet" Notes). A sort of "morning assembly" ???

Going farther down road.

7:54. See single Bluebelly perched in Old Palm over rice field. Also hear Mal Song in distance.

8:02. Much farther on. More Mal Song. In wedge small forest. Phrase after phrase for approximately 2 mins. All Intro - Descending series Whistles. Usual series is composed of 7-8 notes. At least one song was prolonged to 12-13 notes. Is this bird coming into breeding condition?

Lots of Purple Rattles from palm grove. All very hoarse. Really quite "chattering" in quality. Stop ca. 8:15.

NOTE: this side road leads to a village called Enampor.

Zuñiguer,
Oct 4, 1985

Going to same road again this morning.

Hear both Sen and Mal songs on way out. In different areas. Arrive area of Bluebelly group 6:38. Just getting light. Clear and still. Some DC around (see below). Rollers not visible yet.

Hear Bluebelly Rattle in distance (in tall tree) 6:44

First Yellowbill sounds in distance 6:47

6:49. See group of 9 (!) Bluebellies sitting quietly, rather hunched.

Corvax, Oct. 4, 1983, II.

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chick in two adjacent branches (trunks) of tall dead tree in moderate distance. 30-40 ft up. All quite close to one another. Two obvious pairs. One ind. preens briefly. There also is one brief R. But on the whole very peaceful. Presumably waiting for T° to warm up.

Species must roost communally in this area at this time. Can this dead tree be roosting site? The birds are remarkably exposed.

Some more brief R's.

Several inds. seem to have moved off 6:58.

First ind. in small tree by road 7:03. Lands silently, sits looking at ground. Feeding is about to begin. 3 more inds. come in. Someone utters brief burst of soft "Amb" notes. No visual display. Everyone sits.

Now 7 inds. in near tree. One flies off. All the others fly off a few seconds later. Why? All silent. Most go in same general direction. One veers off 60 degrees.

Some Kingfisher high in dead tree across road utters loud harsh "Chak Chak Chak". Presumably "Chatter". Then flies off. I can see it only in silhouette. Possibly, but not certainly, a falcon.

At least one Bluebell, back 7:12. Just sits, high up.

NOTE: There was condensation on wind shield of car when I started out this morning. This was not present on previous days. Perhaps this morning is relatively cool (less hot).

7:21. See single Bluebell (probably ♂, long streamers) mandibular atrial large insect on perch in A tree. Joined by group of 7 Indigobirds. These hop around, uttering harsh, chattering, scolding notes. Bluebell ignores them. Swallows insect. Babblers move on.

Species of babbler probably is plebejus.

Now there are 3 Bluebells in A tree. Sitting and preening.

Hear several more 3-note "Chak" series from dead tree across road. Then Kingfisher flies out. Pursued (not very close) by small hawk. Lands in distant trees. Utters irregular single and double "Chales". Back to its favorite tree a few minutes later. Perches 30 ft up.

It is Mal. etc. After several more single "chak"s at irregular intervals. Then flies off silently.

NOTE: this tree overlooks neglected rice field. Not irrigated. Jumble of rice (broadcast), small bushes, short trees.

This bird probably has been around most of the morning. Interesting that it has not sung.

Also interesting that it has not interacted with Bluebellies. Nearest Bluebelly tree cannot be more than 150 ft away.

7:41. Single Yellowbill vocalizing in Mal tree. Long series of "Pee" notes. Rising to trace of doublets or triplets at one point. Mal apparently absent. Second Yellowbill flies in. First ind. shuts up. Then both fly away silently.

Bluebellies seem to have gone 7:53. Mal has not come back.

Yellowbills still noisy in area.

Going off myself 8:00 a.m.

Hear Purpurs in distance as I go.

NOTE: A group of 9 rollers must be more than one pair of adults and one "generation" of young. The Serle-Morel field guide says that alcyonoides lay 4-5 eggs. (The Lilac lays only 3.)

NOTE: The rainy season was good this year. But it has not rained here since we arrived. Perhaps the dry season is beginning. This would not be unexpected. But the general conditions - very hot and muggy/humid - are sort of "before the monsoon" in effect. And many of the local farmers are still transplanting rice.

Zuiguahos,
Oct. 5, 1984

Back to same area again.

There was heavy rain early this morning ca. 4:00 a.m. It has stopped by 6:00.

Arrive site 6:25 a.m. Still quite dark.

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Blue bellies definitely not in bare tree yet.

A fair amount of general bird sound. Babblers are noisy.

7:02. Hear long "Aaaaaaah" in distance. Roller?

Weather is relatively cool. Cloudy.

Pair of Crinifers moving around and vocalizing in roller trees. Move on. Then pair of Yellowbills appears. Still no sign of rollers themselves. If they are having a "morning assembly", it is elsewhere.

Could they possibly be nomadic at this time of the year?

Yellowbills also in Mal tree 7:25.

A few twanging roller-like sounds in distance.

Yellowbills move on. Then single Redbill flies into Mal tree. Utters series of "Whup" notes. Moves on.

7:31. Mal songs in distance. Phrase after phrase. Not coming from area seen to be occupied by "local" Mal yesterday.

There is a pair of squabblers humming around in large Fromager a few m. down road. Silent. As far as I can tell, generally dull gray brown all over. No rings on tail.

8:02. Still no rollers visible. Going to walk down side path. In direction where Mal flew yesterday.

A few Mal songs in distance. Then phrase after phrase.

Back to road. Still no rollers visible.

Leaving 8:30 am.

Zuiguncho,
Oct. 6, 1985

Pouring rain last night ca. 10:00 - 10:30 p.m.

Arrive Bluebelly area, road to Enampor, 6:35 a.m. Sky clearing. No wind. Bird sounds. Including, immediately, series of Yellowbill "Peeee" Notes in distance.

7:41. Hear "Chak" Notes from several tall trees. Both sides of road.

Singlets, a few Doublets. One Triplet (almost a Chatter) Can't see bird, but it is almost certainly a Mal.

Does Mal use "Chak"s as, effectively, early morning song or territorial advertisement? There might be parallels among surinensis.

No signs of rollers yet. 6:54.

See squirrels in same tree as yesterday 3 individuals.

NOTE: Sky is clearer now than it was yesterday morning. T° will rise faster today than yesterday.

7:10 a.m. See single Bluebelly 30 ft up in bare tree (same tree where 9 inds seen the day before yesterday). Just sitting. Silent. Apparently alone.

7:26. Single Bluebelly still sitting. Does some preening. It is interesting that it has not vocalized. Certainly no attempt to attract companion.

7:28. Hear more "Chak"s from favorite Mal tree. Singlets, Doublets. One series of 3 (notes not accelerating). Apparently spontaneous. Nothing else nearby. Finally see ind. It is Mal sitting in unritualized posture. Flies away silently into distant tree. This ind. must have large range or territory.

7:31. See 2 Bluebellies in tree by road ("B"). Arrived silently. And there also are 2 more Bluebellies in tall tree where single ind. has been. Apparently these latter move over to B tree. Now there are 5 inds in B. No greeting. All birds sit. Then begin feeding flights to ground. One ind (at least) catches large grasshopper. All flights silent. Prey brought back to perch to be battered. Grasshopper is difficult. No Greetings on returns. But there is one soft R, by someone, during battering.

Almost immediately after Bluebellies come to B, a single Mal occupies high perch in tall tree where single Bluebelly perched earlier. Some sort of replacement. Mal begins to sing. Phrase after phrase for minutes on end (still continuing 7:56). No. of whistles per phrase is variable. Probably most often 7 or 8. Some phrases follow one another without pause or interval. Bird sitting in erect, unfluffed, apparently unritualized posture. OCB is slight. Bird looks around frequently. Sometimes from side to side.

But this does not seem to be stereotyped HF

This Male apparently has no mate.

Mal still singing 8:05. Mostly from same tree. But once switches to "old" tree across road for a few minutes.

Bluebellies seem to have gone while I was writing notes.

Mal stops singing 8:07. But remains sitting as before. Then starts singing again.

There have been a few bursts of Yellowbill "Pee" Notes from time to time. Not usually overlapping Mal songs.

8:15. Mal now moving from perch to perch in same tree. Always high. Song phrases still variable but changing. For some minutes bird alters phrases Intro Note (loud sharp) - Tuh tuh-tuh-tuh (quadruplet or 2 doublets, rather muffled) - 3-4 Whistles. First Whistle louder, longer, and more melodious than preceding "Tuh"s. Successive Whistles lower and softer, probably slightly shorter.

Now there is some overlap with Yellowbill "Pee"s

8:20. Now Mal seems to be singing higher adjacent Fromager or large leguminous tree (Acacia?). Out of sight behind leaves.

Finally shuts up 8:24.

This Bird would seem to have been quite highly motivated.

Interesting that it was sitting exposed most of time. Obviously it doesn't have to worry about hawks too much.

8:26. Mal sings again. Phrase after phrase. Conventional Intro-Whistles. No "Tuh"s. Sitting exposed in top of another Fromager (The squirrel tree. Squirrels not visible at the moment.) Still in unneutralized posture. Variably alert looking.

Flies off to distant trees near large rice fields. Still singing almost constantly 8:35

Bluebellies quite gone. Yellowbills quite silent

Mal finally stops, doublets temporary, as I start to pack up 8:37

NOTE: Although the Yellowbill is by far the noisiest and most

Coraci, Oct. 6, 1985, IV.

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conspicuous coraciiform around here, birds of the species do not seem to be very far advanced in the breeding cycle. Only yesterday did one bird, in a very tall tree, utter long series of "Pee" Notes which culminated or descended with "Bowing" and semi-Triplets.

Back to same area 4:50 p.m. Very hot and humid.

No rollers visible

Yellow-bell "Pee" Notes. Bird shuts up.

Then Mal starts to sing. First "doublets". Obviously Intro plus one Whistle. "Hee hee hee". More Whistles added in succeeding phrases. Eventually songs become quite conventional. Bird is invisible. High in trees. Some are trees from which it sang this morning.

Phrase after phrase (again or still!)

Mal continues for 8 min. shuts up. Then some Yellowbell notes again.

0 photos habitats. Then we leave 5:30 p.m. Head down road toward Ossonge.

5:40 See single Mal perched 20 ft up. In Kad (*Acacia albida*) in open area (low grass, small shrubs). Bird is apparently alone (unmated?). Sings a few phrases. Conventional. Then shuts up. Continues to sit. 0 trees to photo.

No. 191 CORRECTION. This bird is Sen. Of course, habitat is suitable. And bird is not blue underneath. Then it utters several Sen-type phrases. Intro - long "whinnying" (first rising, then falling) R.

COMMENT: I suppose that Mal must have been in another tree, behind Kad (in direct line from my point of view). There is small patch of forest about 100-125 m. away. In any case, the 2 species cannot have been far apart.

Sen shuts up. Mal sings (farther away now). Stops.

Then another burst of "whinnying" Sen songs. And I look up to see 2 Sens sitting side by side. Apparently peacefully. Silent now.

One ind. eventually flies up. Lands 2 ft away. Silent. Both inds. continue to sit. Then one begins to sing. Conventional Intro-R phrases.

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Then singer flies away (In Mal direction) Continues singing as before in distant tree. Partner just sits. Then, once, answers with song phrase of its own. Rather "whinnying", I think.
Songs stopped 6:12 Sun will sink shortly.

We go further along road. (This is area of Djibouke.) Reach area of mangrove "swamp". See 3 Pied Kingfishers on wires.

Zuigunchor,
Oct. 4, 1985

Going to Sen-Mal site near Djibouke.
Hear Mal songs on way out.

Arrive 6:30 a.m. Weather clear. Lots of bird sound. But no being fishers at first. Then, 6:33, series of Sen songs. Quite conventional. Intro - R's. R sounds descending regularly. No "Whinnying". Bird is invisible in grove of not very tall trees. Dense. Looks quite like typical Mal habitat.

Sen shuts up. Then more songs. Shuts up again.

6:42 Burst of Rattles from Kad where Sen was yesterday. No Intros. Rather prolonged. Could this be passerine. Do not continue.

Then hear brief burst of what sound like Purple "Chattering Rattles" in distance.

6:47. Sen starts songs again. Conventional. Bird is perched exposed 30 ft up top Kad across road. Then suddenly switches to excited, fluctuating R's, without Intros, and does extreme Wing spread as another Sen comes in, lands 3 ft away. R's stop. Wing spread continues for some seconds. As far as I can tell, Wing spread is facing partner.

Both birds gone for the moment 6:49.

7:01. Kingfisher flies overhead. Coming from distant area (to which Mal may have retreated yesterday). Going across road in direction of rice fields. Silhouette looks Mal-like, but I can't see details.

Coraci, Oct. 7, 1958, II.

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Flight is quite silent.

More Sen songs in distance 7:06. Only a few phrases.

NOTE: I have not yet seen (noticed) TV with Wingspread of Sen this year. Can they be mistaken?

7:20. Single Sen begins to sing. Intro-R's. Bird perched 20 ft up in Kad. sitting posture is unritualized. Only semi-alert. But bird does usually (not always?) raise bill sharply with Intro. This "semi BV" is maintained through R. Angle more or less

This Sen sings continuously until 7:30. Then shuts up, flies away silently.

A few minutes later, there are 4 or 5 Mal songs not far away. Definite. Conventional Mal shuts up.

A few minutes later yet, Sen starts to sing from another tree. Sen songs seem to overlap sounds of distant Yellowbills and Black-bills at random.

Everything very quiet 7:38.

Why are Bluebellies (apparently) absent? Because patches of really bare ground are rare?

7:52. Single Sen starts to sing (again). This time perched 25 ft up in distant Kad. Kad's (all fallen now) are obviously great favorites.

If the Sen singing here is always the same ind., then it has large territory. On the order of 1,000 m x 1,000 m.?

It is getting hot now 7:55.

8:02. Now there are 2 Sens singing. Briefly. Inds far apart from one another. Phrases do not overlap. All conventional Intro-R.

8:05. Single Sen flies over me. Only 5 ft above my head. Utters burst of fluctuating R apparently in response to my presence.

Going to go on to look for Pied Kingfishers 8:15.

Hear one ind. flying over mangrove swamp. See 10 perched on wire. That is all.

NOTE. The kingfishers certainly were not very exciting today.

Coraci, Oct. 7, 1985, III

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Why? In any case, relations between fens and Mals still seem to be "uneasy." The inconspicuousness of the Mal(s) today would suggest that the apparent interspecific interaction noted yesterday was somehow "semi-accidental." Was the Mal "straying"? If so, is this typical of the species? Of other Coraci?

NOTE: In Ziguinchor itself, we have been inundated by a plague of grasshoppers (perhaps the classical locusts). For several days and nights. An overwhelming flight last night. I noticed that there were lots of these insects in scrub, palmier, by neglected rice field along road to Enampar. But I didn't notice many this morning. One would have expected predatory coraciiforms (even *C. abyssinicus*?) to be following the hordes and gorging on them. Yet I have not seen this happen - at least very frequently. Will they concentrate more as time goes on?

NOTE: a medium sized gray hawk (reddish face and cere) perched quietly in large *Ficus* near fin territory this morning. Perhaps *Melierax mellabalis* or something similar. Seemed to be ignored by all the local birds, passerines as well as Kingfishers. One Yellowbill even flew straight over head of hawk. No trace of mobbing.

Ziguinchor,
Oct. 8, 1985

Going back to same area (fen, and presumably Mal).
Arrive 6:30 a.m. Clear. No wind. Miscellaneous bird sounds including hornbills. No Kingfishers.

The fen, of course, may have been guarded, while it was still dark. Very noisy hearing of songs along road on previous days.

NOTE: There are no crashed locusts on highway here
6:42. Catch glimpse fen perched high in Kad. Silent. Apparently alone. Just sitting.

6:58. Hear series 3-4 descending Whistles. No Intro caught.

7:02. Single Sen sings 20 ft up in Kad. Quite conventional. After a couple of minutes, it begins to be answered. Another Sen also begins Intro-R's. Phrases of second bird inserted between phrases of first bird. No overlaps. Then first stops. Second continues to sing quite vigorously for a few minutes. Then also shuts up.

I start down side path. Through grove. Presumably direction of rice fields 7:10.

Yellowbill in full song in distance.

In fact, path runs along edge of grove and scrubby field. No great horde of locusts here either.

7:16 Short burst of Mal songs in distance. Conventional. No other coracii audible at time. Mal shuts up. A few seconds later, Yellowbill starts to vocalize again.

Why are there no bee-eaters around ???

7:22 Catch glimpse of what may be *Haemulon*. Sitting silently, apparently alone, 30 ft up dead tree. Flies away silently.

Then 2 Mal songs in distance. No other coracii vocalizing.

7:31. Single Sen flies out of scrub edge mangrove. Apparently swoops at weaver in flight. Then lands 10 ft away in small dead tree across tidal drainage ditch. Utters several songs. With quite extreme semi-BV *Ho* wing or tail movements. Then stops. Sits.

Then another Sen in similar small tree only 30 ft away utters song. First bird replies. The two duet 5 or 6 phrases. All phrases conventional. No overlaps. These birds must, I think, be mates.

A few more phrases by first bird. I sketch. Both birds fly away silently. Apparently at same time.

None of these Sen songs was overlapped by any other coracii.

I turn around and walk away. I haven't gone more than 15 m. when I hear Mal songs (quite conventional) coming from (almost) exact same spot where the first Sen sang only a few minutes earlier!!! By the time that I get back, Male has moved across drainage

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ditch. Continue to sing from mangrove ca. 30 ft away Out of sight. Phrases conventional or nearly so (In some cases, the penultimate Whistle may be slightly higher than either the preceding or terminal notes.) None of these phrases are overlapped by any thing.

Then suddenly one Sen comes back. Flies to top dead tree near me. Utters one song phrase just after Mal finishes a phrase. Mal falls silent for a minute. Disconcerted? Then Mal starts to sing again from same place. And Sen starts to answer back from its own perch. Both birds utter many phrases in fairly rapid succession. Definite overlaps of songs bet even the two birds. Overlaps are standardised. Male utters Intro. Sen utters Intro immediately after. Then both continue conventional songs. As songs of the two species are approximately equal in length, this means, I think, that Sen usually "has last word". This interchange continues for approx. 4-5 mins. Phrase after phrase by both birds.

Then Mal falls silent. Sen remains perched in dead tree. Sings more phrases. Still conventional. Then second Sen begins to sing 30 ft away. Presumably mate again. The 2 birds alternate phrases without overlaps.

Then both fly to bush across ditch. Stand close together. Fluctuate wing R's, no Intros, as greeting. I can't see if this is accompanied by Wingspread or not. Then both birds fly away silently. Out of sight?

The Sems would seem to have "won" this encounter. Because they are two and the Mal is only one???

While I am writing this up, I hear occasional songs by both Mal and Sen(s). Not regularly overlapping, or alternating - or even closely associated.

Then Mal starts to sing many phrases in close succession. From mangrove some distance away. At first, nothing else vocalises close by. Then Sen reappears in dead tree. Also sings. Mal immediately moves closer. Into low mangrove just across ditch from Sen. Only 25-30 ft away. Both birds continue to sing phrase after phrase. I notice that Mal abruptly goes into semi-BV with each Intro. Just like Sen. The two birds are

Coraci, Oct. 8, 1985, IV.

606

facing each other directly. Arrangement of songs is much less standardized than before. Some random overlaps, some non-overlaps. Only a few seconds of the "ritualized" Mal Intro - Sen Intro Sequence.

Sen gradually sings less frequently. Shuts up. Disappears. Mal continues to sing as before for several minutes. Then also shuts up. Disappears.

The Mal would seem to have "won" this encounter. Because only one Sen was involved ???

While I am writing these last notes, I hear a few Mal and a few Sen songs in distance (s). Birds obviously are not close together.

Starting to leave 8:40 a.m.

CORRECTION. When I said that the song phrases of Mal and Sen were approximately equal in length, I was thinking of "typical" Mal phrases: Intro - 4-7 Whistles. Of course the relation probably is different when a Mal adds "extra" Whistles.

COMMENT. Territories of Mal and Sens seems to be at least partly overlapping here. Probably lots of mutual avoidance involved. The birds certainly are highly aware of one another.

Social groups of Sens and Mals would appear to be different, at least in this area at this time. Sens seem to be in pairs, even if mates are often far apart (more often and further apart than paired amycinus?) Mals appear to be single. If they are paired, then mates stay really, very, far apart indeed.

As far as I can tell, Sen is the only kingfisher in Ziguinchor itself. At least 2 singing individuals in French Club and adjacent park.

So far, this trip, Sens and Bluebellies appear to be mutually exclusive, although Mals overlap with both of the other species. But see my notes of 76-77. In any case, the relations between Sens and Bluebellies must also be "difficult".

NOTE. The "loose" here now is brown with vivid green stripes. The local people at the hotel cannot remember such a

Coracii, Oct. 8, 1985, V.

6017

huge infestation of the same species before. They do remember an invasion of another type "long ago". These earlier locusts are described as "rouge".

Zuñichor,
Oct. 9, 1985

No rain now for 3 days.

Going out to Falmere (O's village).

Hear few song along road 6:20 a.m. Then arrive village 6:35
Clear. No wind.

Fair amount bird noise. Hear songs 6:41. No other coracii audible (I shall call this "NOCA".) Further on, more few songs. Intro-R's. R's very long NOCA.

Then see birds. 2 birds. Evading flight 30+ ft up. Lots of Intro-long R's. Then birds separate, land in different trees 200 m. apart. One falls silent. The other perches high in tree. Utters a few more conventional songs.

This is area of miscellaneous tall trees scattered among peanuts, maize, low scrub.

Several more few songs in next few minutes. Three birds involved. Phrases do not overlap.

6:53. Something flies into tree with twanging, single "Auh" notes. Invisible in tree. But I think it may be Lilac.

More few songs. One bird utters particularly long and slightly fluctuating R's.

A little further on, see 2 Bluebellies. Perched 8 ft up on dead tree over low scrub. Close together. Silent. Just sitting. Then they fly off silently. Land in top of another dead tree.

7:06. Mal starts to sing. Several conventional phrases. Suddenly "answered" by one few song in distance. Not quite overlapping. Then

Coraci, Oct. 9, 1985, III.

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Everything very quiet 8:00.

Then 2 Bluebellies land close together on top of palm stump. With 2 "Anh" Notes. Then just sit. These birds may be the only Bluebellies in the immediate vicinity.

Then one Bluebelly utters Rattle-"Anh" (bill open) facing partner.

8:20 Starting to walk back toward village. Hear several Bluebelly Rattles behind me. Is this pair just starting to come into breeding condition?

Back at village. Everything very quiet. Going to walk around. Leave about 15 mins. later.

Returning to Ziguichor, we find that tide is high in the marsh across from town at 9:15 a.m. And we don't see any Pied Kingfishers! O. thinks that the population has gone way down. Why? Perhaps because a lot of the mangrove bushes have been cut down (presumably for firewood)?

Grasshoppers are less abundant in hotel today. The staff did a lot of spraying. Certainly no conspicuous birds have come to the hotel garden to prey upon the invaders.

Ziguichor,
Oct. 10, 1985

Going to Sen-Mal area near Djibouder.

Heard Sen and Mal songs at different places along road.

Arrive area 6:30 a.m. Lots of bird noise. One Sen is uttering song after song, all conventional Intros-R's, from Rd near road. NOCA. Then there is a burst of fluctuating R, without Intros. Greeting? Then songs stop. All quiet for several minutes.

Unfortunately all this was invisible.

Then a few more songs. Also another burst of fluctuating R's. Then silence again.

6:45. Another burst of R's without Intros. First "straight" and

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(410)

then fluctuating. Still NOCA. Still, unfortunately, invisible.

Another burst similar R's NOCA. Then see bird. Sitting approx. 18 ft up. Apparently alone. There were several Rallies. Apparently provoked by appearance of another bird (mate? or small passerine?) who flies in and lands in. Had some distance away. No Wingspread.

Then suddenly the (first) bird changes perch. Does Intro-R-fluctuating R as it goes. I look up to see 2 birds sitting side by side facing in opposite directions. I couldn't see if there was Wingspread or not. Then one bird disappears silently. Remaining bird utters a few more conventional songs. Then also disappears silently.

A few minutes later (same) bird sings top of distant tree (species unknown). Apparently alone. 17:03

All this is NOCA.

Then falls silent. Then Yellowbills begin songs. NOCA.

Mal certainly is being "shut out", acoustically here!

Starting down side path 17:08

Everything fairly quiet now. Only some Yellowbills in distance. NOCA. They shut up. Then Blackbills sing in distance. NOCA. Then there is a short burst of Yellowbill "Pee"s. Complete overlap. But Blackbills and Yellowbills are far apart from one another. Both species shut up.

2 more bird songs 17:20. Bird shuts up.

Reach area of song "duel" a few days ago. Single bird flies into with small bare tree. Utters song. NOCA. Flute up. Then suddenly there is a second bird in tree. No greeting. The 2 birds sit quietly, 1 1/2 ft apart.

Feeding rate is low, low, low!

Both birds ignore pair of Blackbills high in dead tree 20 ft away. At first Blackbills are silent. Then start songs. NOCA.

Birds fly down creak to another bush. Out of sight.

Greeting type R's. Completely overlapping Blackbills. Later on more R's. Also overlapping Blackbills. Apparently at random.

Does the pair completely lack "chick" type notes and "chatters"?

Coraci, Oct. 10, 1985, III.

(611)

Do some sorts of R's partly take their place?

What would seem to have gone. Are inds. of the species really "semi-nomadic" at this time of year?

Everything quiet except (occasionally) distant hornbills 7:58. I am going to go further along path.

7:58. Single Butorides starts to land in leafy Acacia (not Kad) near creek. It is suddenly dashed at and chased for several m. by Sen (which was presumably perched in tree already). Attack and pursuit are quite silent. Heron flies over. Sen goes back to tree. Utters brief burst fluctuating Rattles ("JLR") on landing. Even though it is landing alone. Sits.

Then utters a few typical songs, NOCA, when another Halcyon (mate?) flies by silently, 20 ft away. Then just sits again.

Sen are aggressive.

They may also have very large territories.

Sen flies to small bushy creek. JLR's on landing. Then sits quietly. Preens (still) no feeding flights.

I start back along path. 8:18. Hear a few more Sen songs behind me. NOCA.

Then hear Purpur-like "chattering" Rattles ahead. Also NOCA.

Then more Sen songs (ahead - first site). Then in now NOCA. Bird falls silent.

See group Purpura in small palm grove. Silent. Move on.

Back to car. Leaving 8:35 a.m.

Zuiguidor,
October 11, 1985

Going to walk around town this morning. Looking for Sens etc. Starting out 6:30 a.m. Cloudy. Dark. Waterbirds noisy. Can't hear anything else.

6:44 Hear a couple of Sen songs in distance NOCA

Coraci, Oct. 11, 1985, II

612

The Larks near hotel are remarkably quiet. Presumably they have their territorial arrangements worked out by now.

Walking along waterfront W of town. No Kingfishers. (But lots of Gray-headed Gulls.

4:39. Single Pied flies along tidal creek. Silent and alone.

Then see big flight (ca. 12 inds.) of what seem to be large bee-eaters flying high overhead. CORRECTION: possibly long legged shorebirds.

Back to hotel 8:05.

NOTE. I see, in my field guide (Serle et al), that the plumage pattern of the Gray-headed Kingfisher (*H. leucocephala*) is, superficially, in general aspect although not in detail, quite reminiscent of the Bluebellied Roller. Is it significant that I have not (yet) seen inds of the two species in or near the same areas?

Going out again late in afternoon. Very hot and stuffy indeed! Along road to Ossonge. Rain into rain 4:50. Brief.

4:58. Sen-Mal area. Dji-bou-lar. See single Sen perched 15 ft up dead tree. Swallowing something Red. Fish? Sets.

Suddenly utters burst of accelerated, slightly fluctuating, R's as another Kingfisher (Pied?) flies by. No Intros. No visual display. Sets.

Then swoops at something on ground. (I think a locust). Twice. Each time with harsh "Kaaa kaa kaa" Notes. Triplets. So species does have "Chatter" after all.

Punches for seconds. Then joins mate in adjacent tree. There may be slight Wingspread as greeting. But apparently no sounds.

One ind. flies away silently. Then the other flies off, equally silently, in another direction. Both out of sight.

5:08 Mal sings 3 or 4 phrases. Very close to where Sens were. NOCA. Shuts up. Immediately, nearby Sen utters one R. No Intros. NOCA. Both shut up. Going on 5:15 pm.

5:36. Big river before Ossonge (where Box used to be). Come across group of approximately 6 Pieds. Very active. Lots of "Twittering".

Coraci, Oct 11, 1985, III

613

Group includes at least one ♂-♀ pair.

Going on 5:45 pm.

See single Pied on wire by rice field ♂. Then another 1,000 m away ♀. Further on, 2 more. At least 4 ♂.

Then we see group of ca. 7 Pieds in dead mangrove islands in lagoon. Too far away to identify sexes. But there is one copulation! One bird flies 2 ft directly on to back of another. No preliminary posturing. Probably some vocalizing. 6:03 pm. Cop. may be successful. Wing waving. "♂" flies off, several ft away. No post cop display as far as I can tell. Certainly no special postures or movements.

Group of 4 holes in bank by road. I think that one Pied may have entered a hole.

Going on 6:10 pm.

NOTE. The wires along the road to Ossouye were full of bee-eaters at various times during my first visit to Senegal. Probably especially in 1974. But we did not see a single individual of any species of bee-eater today.

Surprisingly enough, I have not seen any Alcedo-type kingfishers anywhere where they trap.

Are many kingfishers migratory?

Ziguinchor,
October 12, 1985

Going to try Sen-Mal area by Djibonker.
Near Mal Songou road.

Arrive 6:32 am. Weather is calm and clear.

Hear lots of Mal Song immediately! From far side of road (where birds first heard days ago). Quite conventional, except that the Intros are triple "Tuh tuh-tuh" NOCA.

Then 2 brief bursts Sen R's. No Intros. The first partly overlaps

Coraci, Oct. 12, 1983, II

614

Mal. The second is NOCA. Sen shuts up. Mal continues. Then shuts up too. No vocal sounds for a while.

Was Mal stimulated by rain yesterday.

More Mal songs, triple entries NOCA. Bird shuts up. Then Sen sings intro. R's. NOCA.

These two birds do not seem to be close together.

Sen sings many phrases. All NOCA. Then shuts up 6:50.

One burst of fast "greeting" type "fluctuating" R's.

Will ' 7:02. 3 Yellowbills fly into dump of Kal and palms (a favorite singing place for Sen - but Sen is not around at the time). Not particularly close together. Perch silent. Then one utters a few "Pee" Notes. One bird is sitting exposed. Looks small. ♀? Another bird lands 2 ft away. No definite greeting. Newcomer is large. May be ♂? I see that large has very large green hopper in bill. Mandibulates it frequently. Apparently with difficulty. And someone, presumably one of the 2 birds, produces the presumed ♂, utters long, thin, not very loud, "whizzing" rattling notes. Begging call? Now sexual? Presumed ♂ for. Moves to presumed ♀. Leans toward her. Insect still in bill. ♀ just sits. Then ♀ flies away. ♂ follows, insect still in bill. Third ind. also follows. All departures are silent. A fourth ind. appears and drifts in the same direction.

Hear various Yellowbill sounds in neighborhood during next few minutes. "Pee" Notes. One ind. perches exposed and sings, with Bowing, repeatedly. NOCA except for overlap with one Sen song in distance.

These Yellowbills seem to be coming into breeding condition. Singing is slight. See "H" notes.

Lots of squirrels around in trees by road. The "usual" dull gray-brown species.

7:22. More Yellowbill sound NOCA.

Starting down side path. Everything quiet now 7:32.

Sen song distance NOCA.

Coraci, Oct. 12, 1985, III

615

See song phrase after phrase. NOCA

Hear Blackbill Whistles. NOCA.

Well! See single Bluebelly perched 10 ft up in Kad over "upland" field, mostly low scrub. Utters one low-R. NOCA. Then just sits.

NOTE: this area is immediately adjacent to Sen territory. But almost certainly not overlapping.

Blackbill songs in distance. NOCA. Shuts up. Then 1 Sen song in distance. NOCA. Shuts up. More Blackbill noises. NOCA. Shuts up. More Sen. NOCA. Shuts up.

7:44 Babbler noises from bush 150 m. from Bluebelly. 2. plebeys us and Bluebellies like some belated.

Single Bluebelly (now) on top dead tree. Well within Sen territory. But Sen must be at least several hundred m. away. Bluebelly is perched 50-60 ft up. Utters one "Amb" - Ralite. NOCA. Then just sits.

Bluebelly is looking "inland" rather toward the swamps.

Then things start to become complicated.

I see that one Bluebelly is still in Kad. I shall call it "X". The second Bluebelly in dead tree, I shall call "Y". We X and Y ind. vocalize occasionally. Medleys of "Amb"s and R-type sounds I do not detect any definite "order" of utterances. Sounds of the two ind. overlapping occasionally, apparently at semi-random.

Then X flies to platform top of dead Oil Palm. This palm may be 50 m from Y tree. X joins a third bird, "Z", which presumably has been sitting on platform for some time. Greeting between X and Z. Mixture of "Amb"s and R's. Then the 2 birds sit side by side. Perhaps touching. Probably with trace of U.

All 3 ind. vocalize occasionally. Medleys.

Then the X-Z pair fly up, fly past Y, land in another dead tree on opposite side of Y. This is favorite Sen tree, but Sen is not visible (to me) at the moment. The new tree is about 100 m. from Y tree. Lots of hostile vocalizations, probably by all 3 ind.

Coraci, Oct. 12, 1985, IV

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Then X and Z start "pseudo copulations." I had better call these "Mountings". 8-10 times. At least 3 are reverse. Definite

Format is stereotyped. The 2 inds. sit side by side. Very close. Probably touching. Facing in same direction. Then suddenly, with little or no preliminary, one ind. jumps on back of the other. Stays there for some seconds. This is accompanied by 4-5 (or more) "Anh" Notes. Probably by "top" bird. In "pumping" rhythm. Accelerated. More or less descending series sounds very copulatory (very gull-like). But movements do not "conform" perfectly. Top bird stands, perhaps bends head as if to seize nape of partner. In fact, actual seizure may occur. But top ind. does not wave wings (ever) or lower tail (definite in several instances). Nor does bottom bird ever raise tail. Then top bird dismounts, usually on side from which it came. There is not much "leapfrogging".

"Pumping Anh Notes" and is trail off into rattling like sounds. Comparatively soft. Peculiar. They sound as if a single "Anh" had become "disaggregated", harmonics broken up, rather than like a series of "Anh" notes accelerated and abbreviated. The difference may not be material.

Suddenly, single Sen appears in low, bare bush below X-Z. Bluebellies. Utters one long phrase. Between Bluebelly vocs. Nock. Then Sen disappears.

Bluebellies continue as before. Probably utter multiple hostile vocalizations in addition to the sounds accompanying Mounting.

But somehow the Y individual disappears without my noticing.

Then the X-Z pair fly back to platform of Z tree. Continue mountings, including reversals, as before. For several minutes.

The mountings, in both trees, may be stereotyped in still another way, in addition to the way described above. The two individuals of this pair are conspicuously different in size. I.E. the pair is ♂-♀. Not a conjunction of rivals of the same sex. Usually, (always?) it is the larger ind. (♂? ♀?) which mounts first. Then the smaller ind.

Coraci, Oct. 12, 1985, V

(617)

mounts in its turn. The precise timing may be significant. At least some sequences are Mount-Reverse-pause-Mount-Reverse-pause-Mount-Reverse-pause... It looks as if Reverse Mounting is a semi-automatic response to first mounting.

Then our Bluebelly (Z?) flies to Y tree. Y still not visible. But arrival of Z seems to stimulate Sen (arrival God knows when) to fly out of bottom part of tree and to escape with R's (no intros) NOCA.

Presumed Z sits. Both Z and X continue to utter occasional sounds of the "Amh"-R type.

All the Bluebelly sounds have been NOCA throughout.

Finally, X and Z fly away. Across "plateau" in direction of road. Stop in trees along way. Still noisy on occasion. Eventually disappear. Noises not audible any more. The birds seem to have gone away. Either they have an enormous territory and/or they are exceedingly agile, even semi-nomadic.

COMMENT. The Bluebellies certainly were not in this area a few days ago. They moved in today or, possibly, yesterday. Will they stay or return? In any case, they may be coming into breeding condition. Like the Yellowbills.

The Sen deers seem to be subordinate to Bluebellies. And, again, relations are tense or difficult.

The Bluebellies have gone by 8:00 a.m. I go back to car. Start to leave 8:15. As I go I hear Sen singing in distance. NOCA.

Zuiguncho,
Oct. 13, 1985

Once more to Sen-Mal area past Ngilouker.
Arrive 6:30 a.m. Cloudy & dark. It seems to have rained last night. Lots of bird sound.
Several bursts of Sen R's. No intros NOCA.

Coracii, Oct. 13, 1985, II

618

6:39. Several Mal songs. NOCA.

NOTE. Neither the local Sen nor the local Mal seems to have a fixed point for first songs.

6:45. First Yellowbill "Pee" Notes. Brief series. NOCA. Starting down side path.

Then hear Bluebell or Purple "chattering" R's in distance. NOCA. Several outburst. I can't see the birds.

General level of bird sounds has decreased markedly by 6:50.

A few Yellowbill "Pee"s in distance. NOCA. Stop. Then some Blackbell Whistles. NOCA. Stop. More Yellowbills. NOCA. Stop.

7:00. See single Corniella-type shrike in Kad where X Bluebell was perched yesterday.

Several Sen songs from usual area by creek. NOCA. Stop. Then Blackbell vocalizes in early dead tree. Full song. NOCA. Stop. Note: all the local coracii seem to ignore Longtailed Glossy Starlings. These starlings are abundant here. In both live and dead Oil Palms. Perhaps investigating nest holes. Quite noisy as usual. The coracii vocs. seem to overlap starling noises at random.

Everything quiet 7:12.

A little further on, come across groups of Purpurs in palm grove. Quite noisy at first. Medleys of "Auh" Notes and R's. In no particular order as far as I can tell. Also some clear, rather fluting notes. Could there be juvenile version of "Auh"s ??? (Check '77 notes). At least 5 inds in group. At first NOCA.

Then Yellowbill starts "Pee"s. Overlap Purple sounds completely. Note. Purpurs vocalize more frequently than Rollers or Halcyon kingfishers. They seem to be out of the local "mutual inhibition" complex. At least partly.

Both Purpurs and Yellowbill(s) fall silent. Purpurs fly off toward "plateau". Sen sings. NOCA. Stop.

7:31. Mal songs from mangrove. NOCA stops.
It is still cloudy. Relatively cool. And dull!
One Sen song. NOCA.

Then I hear a "snarling" "Aaaanh" note. In distance from mangrove? Almost certainly. Roller rather than Purpur.

7:55. More Mal songs in distance. NOCA stops.
Note. There are occasional Yellowbill and Blackbill noises around. I have not bothered to note each instance. In general NOCA.

8:01. More Mal songs in distance. NOCA. Does Mal concentrate most (not all) of its singing for later periods of the day than does Sen?

Speak of the devil. Hear burst of 3 Sen songs. Usual place. NOCA. Were these songs stimulated by my approach? If so, why songs rather than "simple" R's?

Then I do hear a burst of JKR's by Sen. NOCA.

8:09. See 1 Bluebell top dead tree (one of the trees used yesterday). Silent. Preening. Apparently ignores sounds of Purpurs a few hundred m. away. Then utters one R when Purpurs fall silent. Sits. Then utters R "anh" - flies off.

A Bluebell is (back) on same perch a few minutes later. Utters medley of "anh"s and R's as it comes in. About 5 secs. later, 2 Bluebells fly into another dead tree only 10 ft away. Usual medley of notes. Land 1-2 ft apart. Sit. Then one of the 2 "newcomers" flies straight to first comer. Lands right beside it. Some "anh"s and/or R's. First comer mounts immediately. Usual cop. noises. Dismounts. The two birds sit side by side. All peaceful. Then another mounting. Same inds. same roles (no reverse); usual sounds. Dismounting. Birds sit as before. In fact, all 3 inds. are peaceful for some minutes.

Then, suddenly, the "pair" birds fly to tree occupied by "third" ind. Hostile sounds come again. Pair birds land close together, approximately 6 ft from third. Another mounting. Same birds, probably same roles (I think that the "mounter" is always the larger bird.)

Coracin, Oct. 13, 1985, IV

620

This mount may have been silent.

Then everyone sits quietly for a few minutes.

Then pair birds fly closer to third. Usual sounds. Another Mount. Probably same birds in same roles. This Mount is accompanied by usual sounds.

NOTE: All Mounts seen today and yesterday have been brief. Only a few (3-7?) seconds.

This closer and closer approach certainly looks like threat.

All 3 inds. sit quietly again. Then pair birds fly away. 8:20
So was this really threat???

NOTE: the third ind. seemed to ignore the pair throughout.
Perhaps patience was after all.

After pair birds have gone, I can hear their vocalizing in trees 100-200 m. away. Then they seem to go away. Third just sits. Finally flies away when egret lands in same tree 8:37.

Local Sen uttered a few songs while the Bluebellies were here. But only when the Bluebellies were silent.

Some Yellowbills also vocalized occasionally. When both Bluebellies and Sen were silent.

Going back 8:45 am

More Mal Songs NOCA.

COMMENT. I assume that the Bluebellies seen today were X, Y and Z. They certainly illustrated some of the complications of the species.

Note that one ind. arrived with another who was not its partner. It only (re) joined its partner, to form "pair" later.

By the way, I think that this "superior" or "switcher" was relatively small. And that it usually or always played "the female role" during subsequent mountings.

Even though the "third" bird is not entirely welcome, it behaves as if it were, somehow, a member of the group. Could it be a young of last brood. I did not notice anything that looked juvenile.

Coraci, Oct. 13, 1983, IV.

621

Some mountings must be low intensity.

I do not think that I ever saw upper bird bent to grasp neck of lower bird during the Mounts today. Perhaps I was wrong on this point yesterday. Must check '76-77 notes.

Back at hotel, hear local Sen singing repeatedly ca 10:00 a.m. NOCA

Zuñichero,
October 14, 1983

Going to look at road to Enampan early. Arrive 6:32 a.m. Getting light. Some bird noises. Not a great deal. No Coraci.

6:52 Mal appears high in usual tree (dead Baobab). Stays for about 3 mins. Utters lots of "chak" Notes. In irregular series at irregular intervals. Perhaps some tendency to group notes into doublets and triplets, but not much. Bird moves frequently from perch to perch within tree. Utters notes from alert posture. Tail jerks with notes. Then the bird flies off silently.

Why does this ind. utter so many "chak"s instead of song. Are the harsh notes reactions to people on road? And/or a form of territorial proclamation.

In any case, the bird still appears to be single.

7:01 Near Bluebell R. See single bird perched high in tall dead tree. Another bird flies in. Lands 4 ft away. No Greeting. Both birds sit. The first utters single R's from time to time. No apparent response. NOCA. First bird flies off silently 7:07. Second remains. Not much of a morning assembly!

First Yellow-bell "Pee"s 7:10 NOCA. Stop.

Remaining Bluebell utters R. NOCA. First bird back a few seconds later. Lands 4 ft away. No Greeting.

Yellowbell Sings NOCA.

Start to walk down road 7:15.

Coraci, Oct 14, 1985, II.

622

7:29. Far down road. Hear more Mal "Chak" Notes from edge of forest. This can hardly be same ind. seen and heard earlier this morning. So frequent "Chaks" may be characteristic of local "population".

7:34. Near Sen Song. Opposite direction. Hear rice fields NOCA

A few Yellowbill sounds later on NOCA

Back to car 8:05. No coraci visible or audible. It is becoming very hot.

Mal Song in distance NOCA. Perhaps this is ind. which visits dead Baobab occasionally. If so, it certainly prefers to sing by the rice fields.

Leaving 8:15 a.m.

NOTE Serle et al. say that the numbers of Lilacs, toward the south, "increase greatly in dry season." So the species is at least partly migratory.

Zunquichor,
October 15, 1985

Going to try Dijibouba area once again.

Sen and Mal Songs along road. Appropriate areas. NOCA.

Arrive 6:30 a.m. Starting down path right away.

7:47. Sen Songs, then SLR, from one of usual areas. NOCA. See pair 18 ft up in dead tree by creek. One flies away. Utters R in flight. The other ind sits. Then goes off silently.

7:53 Single ♂ Giant Kingfisher flies in silently. Lands in dead tree often used by Juns and Bluebellies (not around at the time) 20 ft up. Does V-D TF after landing. Also CR. Sits. Does brief and partial and silent Wingspread when Longtailed Starling comes in, lands 4 ft away. Sits some more. Then flies away silently.

A few minutes later, hear Sen SLR's nearby NOCA.

8:01 Single Yellowbill flies in silently. Lands in tree where Giant was earlier. Preened. Joined by flock of 4 Longtails. Coincidence. Yellowbill does not seem to react. But flies on, still silent a minute later. Yellowbill sounds in distance 8:05. NOCA

Coraci, Oct. 15, 1983, II

(623)

See JLR, then song nearby NOCA Can't see bird(s).
Then I do see pair sitting 3 ft apart 4 ft up in small bare tree edge
creek. One suddenly utters JLR for no apparent reason. (NOTE: Seno
do not usually give song if mate is present - if rivals are absent.) Both
birds sit. One flies away silently.

Pair of Blackbills arrives silently in "giant tree". Then both start
Whistles. Working up to full Head-tossing and Wingflicking. Both birds
almost simultaneously. NOCA. Seno, 20 ft away does not seem to react.
Eventually flies away silently. Blackbills do the same later.

7:18 Seno songs in distance. NOCA

Everything quiet a few minutes later.

NOTE. Morning is relatively cool. Patches of fog around
Yellowbill sounds in distance 7:26. NOCA. Then Seno songs
NOCA. Then Yellowbill songs NOCA. More Seno songs NOCA.

7:35 Group of Purpurs shows up. Rattles and "fluting" sounds.
Presumably usual "family". In both live and dead Oil Palms. Somehow
get involved with group of 4+ Psittaculus. The parrots are disputing
among themselves. Lots of flying back and forth. Sometimes it looks as
if the parrots were "mobbing" the Purpurs; but I think that the impres-
sion is misleading.

Fog is coming in here 7:43.

1 Ad. song in distance. NOCA.

7:52. Single Bluebell arrives silently. Perches high in one of
usual dead trees. Sits. Utters 1 R. NOCA. Sits.

Bluebellies do become "active" late.

One more R by Bluebell 8:05. NOCA.

Going back toward road 8:08.

8:13 More Seno songs and JLR's from Kad. Perhaps provoked by
hawk perched 6 ft away in same tree? Hawk is same species seen a few days
ago - red face. Knightbird does not seem to be very excited. Sits. Utters
R when hawk flies away. Sits.

Coraci, Oct. 13, 1983, III

(624)

8:18 Sen suddenly utters song. Flies to higher perch. Does prolonged silent Wingspread on landing. Then another Sen flies in. Mate? Comes in from direction in which first was facing during Wingspread. Lands 15 ft away. Silent. Both birds sit.

Leaving 8:25.

Ziguindore,
October 16, 1983.

Going to cross river, past mangrove swamp.
No Pud sounds in swamp. Drive through "plateau" past Tabor.
Neither Mal nor Sen audible. Arrive possible site ca. 40 a.m. Clear and calm.

Yellowbill sounds in distance. NOCA. Stop. Then Redbill Long in distance. NOCA. Stop. Then one Bluebell type R in distance. NOCA.

This area is edge plateau and lowland (long abandoned rice field?). Very mixed vegetation.

6:48. Hear Bluebell R's and "Anh"s. See pair Bluebellies 50 ft up on top dead Oil Palm. Apparently Mount is occurring. Silent. Upper bird slides off. The 2 birds sit side by side. Preening.

Then Palm Nut Vulture lands in nearby dead tree. One Bluebell flies around it with many "anh"s and at least one R. No real swoops. Vulture flies on Bluebell, goes to distant tree out of sight.

A few minutes later, crow flies into vulture's tree. It is not mobbed or attacked by Bluebell. Call though. Both Bluebellies are now back on palm only 30 ft away. Actually, there are 2 crows in tree. One flies off. No reaction by Bluebellies.

I walk along road.

Single (sic) Purple fly by. Utters one muffled "Anh".

7:10 Sudden outburst of Sen songs. Phrase after phrase after phrase. All quite conventional. Bird is sitting 100 ft up! Exposed on bare branch of otherwise heavily leafed Baobab. Apparently strongly motivated.

Coraci, Oct. 16, 1983 II.

625

Continues singing steadily for at least 4 mins. NOCA. No trace of "semi BV" at any time. Mutualized posture, only moderately alert. Finally flies off far away. Silent. No trace aerial display.

7:20. Repeated Mal songs. NOCA. These songs are coming from Barbab where Sen was singing only a few minutes earlier. But Mal is not on same perch. In foliage somewhere. Utters about 10 phrases. Stops.

Then Mal utters "wen" song. Then Sen vocalizes same tree! R's (one Intro?) Several overlaps. Not stereotyped. Mal stops. Flies away? Sen utters 1 song. Later 1 R. Did Sen "win" this encounter??

Various Blackbill and Redbill sounds from time to time. Usually or always NOCA. The species are not close to one another.

7:36. More Sen songs from Barbab. Completely overlapped by Blackbill Whistles. Sen shuts up.

See single *Parapur viacacia*. Utters one of the usual "chattering" Rattles of the species. This bird does seem to be alone.

7:43. Walking back toward car. Single Bluebelly still on palm. Does silent feeding flight. Back silent. Then single ♂ Giant flies into "multitree" tree. Sits quietly. Notes. This is far from water. Are Giants "solitary" at this time of year? Then 2 Purpleys appear in "multitree tree". Feeding. Quite silent. No apparent interaction between the three species. Giant and Purpleys eventually drift off - separately.

Bluebelly remains. Utters one burst of 3 "anh" notes. Almost Chatter. Answered by R from another (invisible) bird some distance away. Silence. Then the palm bird makes little circular flight with several "anh" - R's. Back to perch. Sits silent.

Was this "preliminary trace" of aerial display?

Walking along road, see the other Bluebelly sitting quietly on top of "second" palm.

This "pair" does not have companions.

Well! 8:04. Water can't be too far away after all. Three Puds suddenly appear. Circling high over scrubby field. With triplets.

Coraci, Oct. 16, 1985, III

(626)

A few minutes later, 4 Pieds appear chasing one another. With "Isut" Notes, "Tutters" and "Trills". Go on again 8:11.

Pieds back again. Uttering "Isut's" and Quadruplets in flight. Obviously highly motivated here now.

Bluebell, R in distance NOCA.

Note. The Pied sounds also were NOCA. All of them.

More noisy Pied flights 8:20. Mostly "Tutters", NOCA. These flights do not seem to be ritualized in course or (physical) form.

8:24. Long series Great Yelw in distance NOCA.

Leaving 8:30 a.m.

COMMENT. I have been struck by the popularity of tall dead trees (especially isolated ones overlooking low vegetation). Thus, for instance, one of the trees has been visited, and used in most cases, by Bluebellies, Yellowbills, Blackbills, terns, Parapets, as well as Longtailed Glossy Starlings, Psittaculus, pigeons, and many other birds. This may show the importance of getting good sites for perching or look-outs.

Zurich
October 17, 1985

Going to look at Parc of ISDRA Station at Djibouti. Arrive 6:25 a.m. Dark and silent.

The forest is mixed, but impressive.

Several Mal Songs 6:35. NOCA. Then silence. Little DC.

6:55. Blackbill Whistles in distance NOCA stops.

There are crop and scrub fields further on. Whole area looks rich and variegated. But coraci are at least rare. Why? (Kingfishers may be discouraged by fact that there are no immediately available streams or ponds. But this can hardly apply to hornbills and rollers.)

7:20. Brief burst Yellowbill "Pee" Notes. NOCA. Then more a few minutes later. NOCA.

Coraci, Oct. 17, 1985, II.

627

7:26 Hear roller type R in distance by highway. Then see 2 Bluebellies perch 8 ft up dead tree trunk in small scrubby field. Just sitting.

Then lots of Sen songs. From outside Parc. NOCA.

One Bluebelly makes feeble flight to ground. Silent. Apparently unsuccessful. Back to partner, silent. Lands silent. Then partner utters one brief R.

More Sen and Yellowbill Notes from time to time. All NOCA.

See single Purple perched from Oil Palm. Silent. Preening.

Bluebellies still just sitting 7:44

COMMENT. The behavior of the Bluebellies seen today and yesterday is good evidence that the Mounting of the birds near Djibouli was not sexual in motivation. Many or most of the local Bluebellies may be paired, but they certainly are not engaged in courtship now.

Leaving 8:05 a.m.

Zuigunich,
October 18, 1985

Back to Djibouli area.

Mal and Sen songs along road as usual.

Arrive 6:30 a.m. Lots of BC. But no coraci yet.

6:35. Short burst Sen R's. NOCA. Probably one bird joining another. Note: the members of this pair do tend to stick together.

6:50 Several Sen songs from usual Kad. NOCA. Bird invisible.

Note: plumage of the species is almost cryptic in bare Kad.

Starting down path 7:00 a.m. Yellowbill notes in distance. NOCA.

Roller-like R's in distance. NOCA. Then more Sen songs. NOCA at first. Then Yellowbill begins long series "Pee" Notes-song. Completely overlaps Sen. Sen finally stops.

7:12 Area dead trees, Bluebellies, etc. Some Sen songs. NOCA. Then Yellowbill "Pee"s. NOCA. Then Mal songs in distance. Phrase after phrase. NOCA stops. More Yellowbill. NOCA stops.

Coraci, Oct. 18, 1985 II.

(628)

Usual group Purpurus in usual palm grove. Very noisy. Rattles and "Anh" Notes. Noca. Some Bowing - at least tail waving. The Purpurus seem to ignore, and to be ignored by nearby group Long-tailed Glossy Starlings.

Going further down path 17:32

Single Sen in acacia utters 2 R's when pair of bulbuls, fighting among themselves, flies closely.

Some of the supposed Tads are coming into leaf. Sign of dry season.

8:02. Back to Bluebell area. No Bluebellies here now. But there is a single Lilac perched quietly at top of everyone's favorite dead tree. This is an exposed position for the species.

A single Giant flies in silently. Perches low in same tree. Lilac pays no attention. Giant flies on silently.

Sen songs and R's not far away. Suddenly bursts into aerial chase. Roughly circling 40 ft up. Very noisy. Some "snipe" R's. But also lots of song with conventional Intro Notes. Songs by at least 2 out of 3 inds. Birds fly away as fisherman appears. So does Lilac.

So there is more than just a single pair of Sens here!

Zingindor
October 19, 1985

Going across river, past Tolor. Pass site where I worked a few days ago. Off on white side road. Small steps: 45. Plateau. Mixed scrub and scattered trees.

Sen songs immediately. Noca stop. Then Red bell songs. Noca stop.

6:50. See 2 Lilacs. Perched 30-40 ft up in dead tree 10 ft apart from one another. One ind. makes 3 short-ish feeding flights. Quite silent throughout. On third flight, comes close by "partner". The latter flies off to leafy tree 50 m. away. Silent. All very calm indeed. Still, it is

Coraci, Oct. 17, 1985, II

(629)

nice to know that species is in pairs now

Walking further down side path 7:05

Lots of *Drongos* in this plateau habitat. Feeding lower than *Filac*

Group of 4 bee-eaters in small Kad. Small species. Sitting quietly. 2 fly off.

7:12. See medium small *Alcedo* type Kingfisher. 10 ft up in tree. Flies away silently to bush. Note: there cannot be any water closely. Presumably the species is *picta* ("Pygmy")

See *Drongo* further on NOCK. See bird. Perched 20 ft up in lighter Kad. Sings phrase after phrase. All conventional. But there is another bird perched out "ce" away. Latter is sitting rather hunched and fluffed, but not (otherwise) paying any visible attention to singer. Singer stops. Flies away silently. The other bird continues to sit. Then flies away silently in opposite direction.

Were these birds mates? Or what ???

Blackbill Whistles in distance. NOCK

Single *Filac* flies by in distance. Utters series single "Anh"s. Then I see single *Naermis* (definite) perched silent and alone in distant Kad. Could this be the "Filac" seen a few minutes earlier? In any case, *Naermis* flies off with "Anh" sounds. (Note: Species looks comparatively long and slim when perched upright.)

7:38. Pair of Blackbills moving through trees. Quite silent. Unexcited. Certainly not courting.

Will! Pair of *Festulatores* flies by. Uttering "Anh" type notes and "rattling chatters" in flight. Really very roller-like in quality. Birds fly straight on and disappear in distance.

7:48. Not far from general area where fens and *Alcedo* seen earlier. A single Striped Kingfisher (*chalcanti*) flies into some bare bush. Silent and alone. Perched 3 ft up. Peering and craning its neck to look at ground. Does one slight V-D HB. Then flies on. Still silent.

8:00 See single bee-eater perched exposed 6 ft up. It is the Swallow-tailed

8:08 Back by road. See *Drongo* from large leafy tree. The R's

Coraci, Oct. 17, 1985, III

(630)

are unusually long. Fluctuating toward end. NOCA. Stop. Then start again. More conventional. Phrase after phrase. All NOCA. Then bird flies from tree to tree over wide area. Patrolling. Apparently alone. More song. Some with HR component. Some without. Still NOCA.

Leaving myself 8:25.

COMMENT. The "mix" of coraciiforms on this plateau certainly is very different from the assemblage in the lower areas where I have worked before on this trip.

I wonder why Abyssinians bother to migrate? The plateau looks suitable for them now. Is there some connection with hunting or chasing in groups???

Zuigwiche,
October 20, 1985

Going back to same place (white road).

Arrive 6:40. Clear and calm. Park under trees where few sang yesterday. No few songs now. But there is Mal singing in distance. 6-7 phrases. All NOCA. Stop.

Walking down road.

Single Lilac perched 30 ft up. Silent. Apparently alone. Flies off silently to another (leafy) tree. These birds are not demonstrative now!

See songs 6:34. NOCA. Stop.

Will! See pair Bluebellies on top of Kad (probably over millet fields). Just sitting. So ranges of Bluebellies, Hammers, and Atlacs must be at least adjacent here.

Now I see that there is a 3rd Bluebell same tree. None of the birds are close together. And there is a 4th bird in another Kad several hundred m. away.

Were these birds here yesterday? Or have they just moved in?

7:03 Lilac type "Aah" Notes from leafy tree.

Coraci, Oct. 20, 1985, II,

(631)

Bluebellies making feeding flights to ground. At least from here, they seem to be silent.

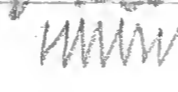
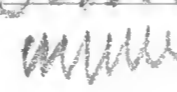
Group 3 Swallow-tailed Bee-eaters in dead tree (As I remember, this species is the bee-eater of plateau areas.)

Blackbill sounds in distance. NOCA. Stop 7:09.

Well 'Well' 7:15 See single Abyssinian (definite, blue underneath, long streamers) perched very high on bare branches of half-leafy, half-leafless *Acacia*. Silent. Just sits. Then flies off silently into distance. A few seconds later, I hear roller-type rasping notes from direction in which Abyssinian disappeared. So this species also is at least adjacent to the others. (Note: I am sure that Abyssinian was not in *Acacia* yesterday. Is it also "nomadic"?)

Then see Abyssinian again. Perched high in leafless *Baobab*. Utters a long "Aaah" note. Sits. Some "wagging" or "balancing" movements of tail. Just looks at pair of *Psittaculus* when they land in same tree.

7:27 Striped Kingfisher not (immediately) visible in area where it was seen yesterday.

Then a streak of greenish-blue flies by. Probably Striped. Disappears into scrub. In next few minutes, hear irregular series of short "buzzes" from same area. "Rah" or "Ruh"   Could this be Striped (viz. fly). Stops.

7:40 More Blackbill sounds in distance. NOCA.

See single Sen, silent and alone, 6 ft up small *Kal*.

Also see 1 primary and 1 other (contour) feather of *Halcyon* on path. Nothing. Fight. Predation ???

Everything very quiet 7:45

7:59 Walking back up road. See Sen perched more or less as before. Silent and alone.

Then hear Bluebelly sounds in neighborhood. Middle "Auli"s and R's. See one ind. perched "platform" top dead palm. Another ind. flies in to

Coracin, Oct. 20, 1985 III

432

join. Rather elaborate Greeting. Medley. Including one (accidental?)
"Rattle - Rur". Then Mounting. This might have been real cop!!!
Top bird does seize nape. Does lower tail. Moves wings in balancing
movements. I did not see bottom bird raise tail. Cop accompanied
by "usual" pumping "Anh" series. Top bird slips off. One bird utters
R. Both sit silently. Then there is another Mount. Probably reverse.
Less elaborate. No tail lowering. Apparently no wing movements. But
some bending as if to seize nape. And usual pumping "Anh"s. Top
bird slips off. The 2 birds sit side by side. Occasional sounds (both
"Anh"s and R's, I think).

Then one bird flies off to dead palm 100m. away. Perches
briefly. Barks. Medley Greeting. Mounting. Obviously not a successful
copulation. No wing movements; but usual sounds. Brief. Then birds sit
side by side.

While I am writing notes, both birds fly off to moderate
distance. Out of sight; but I can still hear occasional sounds.

What was this all about???

NOTE: I am fairly certain that there were no other Bluebellies any
where nearby. And the Bluebellies seemed to ignore fen. I think
that the fen may have moved away at some time during the proceed-
ings; but I cannot be sure of this. It certainly did not fung or utter R's.

8.25. Yellowbill sounds. NOCA. Stop. Then Blackbill sounds.
NOCA. Stop. Then Redbill sounds. NOCA. Stop. Domestic avoidance
seems to be perfect when motivation is low.

Leaving 8:40 am.

COMMENTS

① I must check what, exactly, is done by the upper bird during
copulations and "pseudo copulation". Particular, wing movements.
Is there ever any real "breating". Or does the upper bird simply
extend one or both wings (outward, downward, backward) in order
to maintain balance.

Coraci, Oct. 20, 1985, IV.

633

(2) Is it possible that I made a mistake yesterday? Was the supposed picta really a streaked?

(3) I have been re-reading Kay, Sunde, etc., and I have been impressed to discover how many African coraciiforms are partly or wholly migratory. Why? Do they move in search of feeding grounds? Is food limiting for these birds? And/or is it an adaptation to reduce competition. (Amount of interspecific aggression might be important here.)

(4) The local fens obviously are different from their "colleagues" now. More sedentary, smaller territories. More active or overtly paired than other Kingfishers and rollers.

Zuigindor
October 21, 1985

Same place again this morning

See song along road. Arrive site 6:36 am. A fair amount of DC. But no Coraci audible at the moment. Starting down path immediately. Still not full light. Clear, hot wind.

No Bluebellies in kids - yet.

6:47 Redbill starts song NOCA.

Lilac makes silent feeding flight. Lands silently in leafy tree. These birds certainly do not feed in flocks at dawn!

More Redbill sounds in distance. Marly Lilac starts to utter "Aaank" Notes. Mostly doublets and triplets. At first completely overlapped by Redbill. Then Redbill stops. Lilac continues for a minute or so. NOCA. Then stops also.

7:00 am. Group 5 Swallow-tails perched same tree as yesterday. Quiet. Preening. Then start to move. Presumably feeding flights. (This seems to me to be early. But flying insects must be up and around. Already. Vg the Lilac a few minutes earlier.)

17:03 Yellowbill sounds in distance NOCA.

There seems to be at least one pair among Sallowtails.

17:10. Single Sen perched 6 ft up dead tree usual area. Another Sen flies in silently. No real Greeting. But newcomer does U-D Tail Bob on landing. Both sit. Then first ind. flies to another tree.

Lilac still making silent circular feeding flights 17:21.

17:34 See single Striped in same dead tree where Sens were sitting earlier. The Sens are not visible or audible at the moment. Striped is sitting 10-12 ft up. At first silent. Then starts to "Sing". Songs are very distinctive Doublets. "Keeeee-kurr" — I suppose that Fry's homology is correct. Doublets often in series (4-6 "pairs"). Not accompanied by conspicuous movements. OCB is slight.

Then suddenly the bird flies to another perch. And I see that a second Striped is perched 4-5 ft away. There is an elaborate Greeting. Doublets in series. Each Doublet (and particularly second note (??)) accompanied by "Flick-Spread". Wings are fully spread but brief. The 2 birds stand facing one another. In erect posture, necks more or less stretched upward, bills more or less semi-BV. No trace of tail-raising. Each bird must do approximately a dozen of these performances. Then stop. Sit silently. One bird flies away. The other remains.

The remaining bird utters more songs while I am writing notes.
COMMENT: Two points of interest. (1) These Striped seem to be a pair. (2) The local Sens did not intervene. Even though the Stripes were very conspicuous indeed.

17:55 Another burst of song by remaining Strake. Stops. Immediately, there is a song from Sen approximately 200 ft away. Stops. Sen utters a few more songs in next few minutes. Strake remains silent.

Strake is sitting fully exposed 30 ft up. No feeding pounces.

8:00 More Sen songs. NOCA.

Some roller-type sounds in distance. NOCA Brief.

More Sen songs. NOCA. Stop. Immediately Strake utters 6-7

Coraci, Oct. 21, 1985, III.

(435)

Doublets, steps

Streak songs were given from unmutualized posture. Definite
No trace of Flick-Sprudds.

Why is Greeting so elaborate in this species?

Streak finally flies off 8:07. Silent. Goes long distance. I.E. territory
or range must be at least fairly large. (Note: there does not seem to be
much bare ground around here. Streaks probably are feeding from low veget-
ation. Must check Greig-Smith.)

Everything very quiet 8:10.

Blackbill Whistler 8:14. NOCA.

Walk down path a few feet. Unexpectedly flush a streak from small
tree. It flies to bush 20 ft. away. It may utter soft "Kaar" in flight. Lands
silently. Sets. Peering at ground (from 4 ft up). Then flies off silently. Toward
large, half-leafy Baobabs.

There is a hawk investigating hole in this tree. No one seems to be
paying any attention to it. The hawk certainly is *Polyboroides radiatus*.
Isn't this the species which specializes in nestlings (Tree, bee-eaters)? In
any case, the hawk certainly didn't get anything this time.

8:29. Walking back. See single streak perched silently, 23-30 ft up
in "first" dead tree. No sign of feed ground. Streak flies off silently.

Redbill "Whup"s in distance. NOCA.

8:36. Single Bluebell high in one of the usual Kads. Ignores group
of short-tailed grey starlings in same tree.

Leaving 8:45 a.m.

COMMENTS. The social behavior and spatial arrangements of
the streaks here are very reminiscent of the local larks. Yet the two
species must differ in more than habitat preference. Viz. the sexual di-
morphism of streaks, and their occasional occurrence in groups.

The 2 streaks here do seem to be sedentary for the moment.

It is conceivable that streaks belong to the Sen-Mal avoidance
system. Doubtless avoidance is (another) way of conserving energy as
well as reducing the risks of fighting.

Coraci, Oct. 21, 1985, IV.

(436)

Going back to same area in afternoon. Arrive 4:50 p.m. Very hot and still humid (altho dry season seems to be starting).

Going to walk down another side road

Yellowbills sounds in distance NOCA. Then Blackbills NOCA. Then Redbills NOCA. Then Blackbills again NOCA. Stops.

All 3 Hornbill species continue to vocalize during next 15 mins. All or almost all NOCA.

Generally a fair amount of bird noise 5:22. But no rollers or Kingfishers. They must be sitting very stolid indeed.

Start down usual path 5:35. Immediately what I assume to be Zilae flying about excitedly. Series of 8's, semi-swoops. All with "Aaaaanh" Notes. Then bird lands top of leafy tree (one of the preferred trees of Zilae in morning).

A very few seconds later, single Abyssinian appears. Identification definite. Flying around very rapidly and excitedly indeed. One full soar with set wings. 20-40 (45) ft above ground. All with long buzzy "Aaaaaanh" Notes. Then bird flies to (another) leafy tree. With "Aaaaanh"s and one "Chatter" of 5 notes ("Aanh aanh aanh aanh aanh" or even "Kaa kaa kaa kaa kaa"). Zilae expand. Continues to utter long "Aaaaanh" Notes. Neutralized posture.

Then Blackbill sings nearby tree. Flies by Abyssinian. Roller immediately launches in pursuit. Chases and swoops with beating wings. All with "Aaanh" Notes. Blackbill does not resist; eventually is forced to land on ground. Stands in silent defensive posture. Abyssinian swoops off, chases, swoops, "screams" at Yellow-wattled Lapwing. Swoops off again. Lands back in tree. A few more "Aaaaanh" Notes. Then shuts up.

Abyssinian may be "establishing" territory. Perhaps necessary after migration. Certainly aggressive to Blackbill and Lapwing. Was it also engaged in dispute with Zilae? Have I seen other disputes between Abyssinians and Zilae? I think so.

Complete overlap

Coraci, Oct. 25, 1985, V

(637)

6:00 pm. Bluebellies absent from "usual" Kads near Abyssinian tree.

Redbill song in distance. NOCA.

Stralis are neither visible nor audible in usual morning area. In fact, everything seems very quiet 6:12 pm. Even though sun is still (just) above horizon.

No trace of "mass hawking" by Lilacs.

More Redbill song 6:22. This species may start to sing earlier, and continue to sing (off and on) later than any of the other local hornbills.

6:24. Group of Blackbills flies overhead. Apparently on way to roost. Silent except for one Whistle.

Aha! 2 Lilacs make feeding flights 6:34. Apparently this is the only pair around here now.

Leaving 6:37 pm.

COMMENT: The Abyssinian certainly appears to be "single". Does "pairing" occur on the breeding grounds after migration? As in north temperate passerines. Is Halcyon leucocephala another example of the same phenomenon?

Zuigunchor,
October 22, 1985

Going to work along road to Ossouze this morning. By "colony" of Pied Kingfishers (where copulation was seen in the afternoon a few days ago). Our objective is recording sounds.

Arrive ca 6:25 am. Just getting light.

Almost immediately, there is a burst of Halcyon. Both Sen (at least two individuals) and Mal (probably only one individual). The Mal and the Sens are far apart, on opposite sides of flat-mangrove swamp area. But quite audible to one another. And apparently located in similar habitats. In or near borders of mixed forest-palm groves. At first

Coraci, Oct 22, 1985, II.

(638)

the songs of the 2 species ^{alternate} alternate. Then there is some ^{overlap} overlapping. Apparently overlaps are not ritualized, stereotyped in form or sequence. Then there are more alternations. The timing would suggest that the Sen (s) are answering the Mal rather than vice versa. Mal sings - Sen sings immediately afterward - pause - Mal sings - Sen sings immediately - pause...

Is Sen, the smaller species, more aggressive than Mal, the larger species? At least at this time of the year. At least until disputes develop into actual fighting. There may be a parallel. Pied, the smaller species, may be more aggressive than Giant, the larger species.

There are no Pied noises at first. The air space is left to Sen and Mal (and some non-coraciiforms). The Sen and Mal finally shut up temporarily. This is just about the time, ca. 6:45 a.m., that the Peds begin to become noisy.

Their usual repertoire. "Tset" Notes, Twitters, Trills, etc. Plus some sounds (e.g. "Tsee-tsee-tsee-tsee-tsee-tsee"). Perhaps a high pitched equivalent of "Chatter" (?) I notice that some of the Quadruplet-type Twitters might be homologized with songs of African Halcyon.

Lots of chasing back and forth as usual. No stereotyped circular flights.

I did not have time to check sex ratios. There seemed to be at least one "pair" of one ♂ and one ♀ within group. Total no. of inds. was ca. 20. There may have been a surplus of males within the group. There certainly was no surplus of females.

The colony is clustered on a mangrove marsh. Mangroves are low bushes. I think tide was fairly high this morning. Marsh is bordered by low ("plateau" type banks - sand and clay, I should think) 1-2 ft above water as of this morning. Many birds perched on branches, trunks, and boulders near entrances. Finally, 7:25 a single male flies in, lands on boulder. Has fish in bill (held lengthwise). Sets quietly. No display. Moves to another boulder. Sets quietly. Then suddenly flies to hole,

Coraci, Oct. 22, 1985, III.

(639)

enters. As far as I can tell, flight is silent. I do not hear any Begging noises from within hole. It stays in hole approximately 1 min. Out again, perches, dives to bathe, back to perch, dries plumage, flies off to distant perch.

So some birds definitely are breeding now.

Birds continue to behave as before. Some Mal songs in distance. Also some Yellowbill song. Mal and Yellowbill songs do not overlap one another. But both are completely overlapping with sounds of Pied.

COMMENT: Pied seems to be completely outside Halcyon - roller "avoidance complex".

The general strategy of the Peds is peculiar. No conservation of energy. Rather the reverse. Not only is hovering expensive. So is the very frequent chasing back and forth. I.E. they feed on nutritious (and abundant) food, and they take full advantage of the resources available.

What is the position of Grants? (A sort of Caspian Tern.)

In any case, I recorded most of the sounds and all this morning. First section of first side of tape 1. Quite clear but rather faint (we were not using the parabola). Considerable background noise.

Leave area ca 7:40 - 7:45.

Stop near bridge near Agiboulou. See songs 8:10 NOCA

Zaigouclou,
October 23, 1985

Going back to white road beyond Jabor.

Hear Mal and Sen songs on road. NOCA

Arrive ca 3:30 a.m. Still not full light. Days are getting shorter now. Some bird sounds. No coraci yet. Start usual side road.

6:44. Redbill sounds in distance. NOCA. Again the first hornbill to become vocal. Two phrases and then stops.

Coroico, Oct. 23, 1985, II,

(440)

Single Zilac perched silent, high up bare branch of leafy tree
Apparently Bluebellies have not arrived yet c. 56.

More Redbill sounds NOCA. Then many full songs. This bird
obviously is quite highly motivated. Finally stop after 3-4 mins.

No sign of Streaks in usual area 7:12

Yellowbill and Blackbill sounds in distance NOCA.

Very quiet and dull this morning.

7:40 Way down by village. Hear roller-type semi-R and harsh
"Charr" notes. From top tall leafy tree. Bird invisible. More of same sounds.
Plus one real, long, mechanical R. Then I see bird. It is Abyssinian
sitting 35 ft up. Preening. Occasional single "Charr" Notes. These must be
very low intensity. Then 1 Chatter of 3 "Charr"s ("Charr"s must be homolog
songs with "Arr"s of other species. But the ones being uttered here now are not
usual.) This Abyssinian seems quite alone.

Blackbill sounds in distance. NOCA.

Abyssinian utters 4-5 "Charr"s — R — 2-3 "Charr"s — R.
(Ill-tempered grumbling.) Then disappears silently.

8:01. Back up road. See aerial chase 2 birds. One pulls off, into
tree out of sight. The other continues little circular flight. Movements
not ritualized. Utters 2 songs, then silent. Then down leafy acacia,
a sudden outburst of Streak Doublets. See flutter off. (The bird is
alarmed or disturbed.) Streak utters more Doublets. "Answered" by
Doublets from another bird in another leafy acacia 20 ft away. The
phrases of the 2 birds are (variable) overlapping.

In next few minutes, hear 4 or 5 more bursts or series of
Streak Doublets. From at least 2 inds, far apart, on either side of
road. Either there is more than 1 pair of Streaks here. Or the members
of the pair move around a lot over a fairly wide area.

Series often include 6-12 Doublets, one right after the
other. See comments below.

8:16. A little further along road. Hear long series of songs.

Coracin, Oct. 23, 1985, III.

(641)

NOCA (This may be one of the inds. that was involved in chase.) Then stops further on, more Sen songs NOCA stop.

Then hear burst 4 Streak Doublets. NOCA stops. Sings is perched high in same dead tree used 2 days ago. Just sits. First alert posture. Then quite relaxed. Pays absolutely no attention to single Redbell singing vigorously 150m. away. Hornbill to NOCA.

8:29. Now I see that there is second streak in same tree. Also perched high. Preening, 10 ft from first ind.

Then Sen starts to sing 150 m. away. Completely overlaps Redbell. And the 2 streaks disappear, silently, while I write preceding sentence. Reaction to Sen song??? In any case, Sen soon stops.

One streak back, silently dead tree 8:36.

Now both streaks back. I wasn't looking at the time, but obviously there was no (vocal) greeting. The 2 inds. sit quietly, 3 ft apart. One flies to another perch. Flight is silent. No Landing Call. Sits. Then flies on, out of sight, silently.

8:45. Some roller type harsh notes in distance. Also some R's NOCA. Then see bird. Bluebelly chasing unidentified bird (back). Roller returns to Kad. Sits silently. Apparently alone.

No. There is another Bluebelly there. Both inds. sit. One preens. A couple of mild R's.

Sen songs. Possibly provoked by unidentified brown bird (almost certainly not streak) stops.

Clearly Swallowtail paid no attention to Sen.

A few minutes later, hear burst of streak Doublets some m. down road NOCA see 2 inds. 1 ft apart, 30-35 ft up dead branch of otherwise leafy tree. One preens.

Sen and streak territories are at least widely overlapping.

Leaving 9:05 am.

It is beginning to look as if relations between Sen and streak are difficult.

Coraci, Oct. 23, 1985, IV

(642)

NOTE. The songs of streaks are so unlike those of any other Halcyon that I know that I may well have "overlooked" them on numerous occasions. The species may be more common and more widespread than I suspected.

Going back to same site this afternoon. Arrive on road 5:30. Straight down path. I will try to photo

Blackbill Siskin, NOCA. Stops. One Roller R. NOCA.

5:40. Roller R. NOCA.

Then see streak in usual dead tree. Just sitting. Mate flies in. Lands 15 ft away. No greeting.

Purple in leafy tree. Utters "Auh" Notes. Then R's. Probably several individuals. Then lots of "Auh"s and R's. Medley. All NOCA. Then birds fly off. Group of 5 inds.

One streak flies off silently. Back silent. No greeting.

5:56. I think that I hear streak doublets in distance. Certainly not by near birds in dead tree. NOCA.

5:59. Streaks start to fly around. At least one feeding flight to ground or low scrub. Then 3 birds come back. Land on low branch. 12 ft up. Equidistant. 1 ft apart. No greeting or landing calls. One bird in center, has prey in bill. Quite large but not identifiable from here. Everyone sits. Then the bird hops over to companion (young). Parent preys to it. Then back to original perch. Giver does repeated BW. Receiver apparently swallows prey promptly. Then giver flies away.

Both before and after feeding, I hear repeated "Keek" Notes. Irregular series, not very rapid. These sound like first notes of doublets. No ritualized postures or movements.

While I am writing these notes, I photos another feeding. Apparently silent.

So birds have probably bred already! In rainy season.
All 3 birds apparently gone 6:12 pm.
One streak back silently 6:14. Sits.

Coraci, Oct. 23, 1983, V.

643

Strake flies off to leafy tree. Silent throughout.

Where is the local Hen?

There is at least 1 Swallowtail in neighborhood. Silent.

Leaving 4:30 pm.

COMMENT. I suppose that the Strake being fed was young. But it was not noticeably juvenile in appearance (in silhouette). Not fluffy nor short-tailed. And, incidentally, no "begging" movements or posture (the bird simply stretched forward to take food).

Zugzwang,
Oct. 24, 1983.

Back to same place. See songs along road. Arrive 6:36 am.

Immediately hear Mal songs in distance. NOCA. Stop.

Reach usual Strake area 6:46. No Coraci visible or audible.

Then Redbill starts singing. First as usual. NOCA.

Note: there are patches of fog nearby, but not here.

6:54. See a Strake 5 ft up on bare lower branch of pretty leafy tree (probably the sleeping tree). Just sitting. Rather hunched. Looking around. Possibly nervous about me (I am only 10 ft away). Does lots and lots of HB's. This species is a great "bobber". Also 1 BW - lateral headshake.

Goes into very sleek, oblique forward position when hawk glides over head. Looks very thin, slender. Then relaxes. Stops HB's. I.E. HB's are a sign of nervousness.

7:02. Still no sign of feeding.

Bird pays no attention when group of schoolboys goes by.

7:06. See two Strakes perched 1 ft apart in usual dead tree. Certainly arrived silently. As far as I can tell, the male bird paid no attention to them when they arrived. But it flies away a few minutes later. Silently. Then "pair" flies off. Also silently. (This is not, generally, a noisy species.) Presumably all 3 Strakes have gone to feed.

Cornell, Oct. 24, 1985, II.

644

7:08. Blackbill starts to sing 150 m. away. Phrase after phrase.
All NOCA stops.

Hear 1 roller or Purple R somewhere.

Why is local sex so inconspicuous? No rivals around? Breeding already well advanced.

7:13. Series of Streak Doublets from top, leafy part, of nesting tree.
NOCA stops.

7:20. There is at least one streak still around. Flies from center of nesting tree to exposed bare branch. Silent. (Something is giving series of 4-7 buzzy "Beep" notes in tree. But it does not seem to be this streak.) Streak is perched 40 ft up. Looking around. Flies down to or near ground 60 ft away. Silent. Back immediately. Still silent. Disappears into leafy part of tree.

7:27. A couple of sex songs not far away. NOCA. Unfortunately I can't see any of the streaks at the time.

7:31. Streak back in dead tree. Silent. Disappears.

Burst of sex R's not far away. NOCA. Stop. A few seconds later, a long series of Streak Doublets. Two inds. Phrases overlapping. The 2 inds are sitting in another dead tree, 200 m. from first. As far as I can tell, no special postures or movements. Streaks fall silent. A few minutes later, more sex R's. NOCA. Stop. A few seconds later, another burst of Streak Doublets. NOCA. Stop.

Were the streaks responding to the sex? If so, the responses did not seem to be quite instantaneous. (But viz yesterday.)

7:41. One streak sitting quite usual dead tree. Another streak flies in, lands 4 ft away. Both inds. silent. Just look at one another. No greeting.

7:44. A long burst of Streak Doublets from a rather distant tree. NOCA. The 2 inds in usual dead tree do not seem to respond. Doublets stop. A few seconds later, there is a brief burst of sex R's.

7:49. Several more bursts of Streak Doublets. No sound from sex

Coracin, Oct. 24, 1985, IV.

445

(Something is giving series of "Keep" Notes in other trees But I can't see the vocalizer.)

More Streak songs. All NOCA. Again NOCA. Again and again. I think that these series of doublets are being uttered by visible bird in dead tree. No special postures or movements.

Streak(s) singing more now than earlier in morning.

8:00 am. Everything quiet.

More Streak Doublets. NOCA. Stop. No response.

8:08. 2 Streaks in usual dead tree. 3rd ind. out of sight. The spatial arrangements of this family group certainly are 2-1. The two inds. visible now are 10 ft apart, one considerably higher than the other. Then third bird does show up. Lands close beside lower bird. Silent. No greeting. Everyone sits. Then one of the "lower" birds flies to "upper", silent. Lands 1 ft away. Approached ind. does 2 Flick-Spreads. Either silent or, just possibly, faint warbling or twittering. Everyone sits. Then one of the "uppers" flies silently to resting tree.

8:16. Whole burst of full song. At first close (but on other side of road from streaks). Gradually further away. All NOCA. Stop. All the streaks did was look.

COMMENT: If Streaks really respond to Sers (which seems rather dubious at present), then they may respond to R's rather than to full songs. ????

Sometimes, it almost looks as if the local Ser was "circling" around the core area of Streak group.

8:21. Burst of sounds from sleeping tree. Almost certainly Streak. Ser is right, although I can't see bird. This is song in form of a series of triplets "Keep - Kachurur". NOCA. Stop.

Intro Notes of this species are very conspicuous.

Everyone out of sight 8:30. Going to walk back up road.

Single harsh "Aaahh" Notes coming from top of tall leafy tree.

Sounds like Abyssinian.

Coraci, Oct. 24, 1985, IV

(446)

Leaving 8:40 a.m.

COMMENT. The local fens seem to be "tolerating" the Strakes. Is this because group of Strakes includes 3 inds, while the fens are only 1 or 2? Whatever the reasons why smaller species occur in larger or more closely knit groups, their groupings must (also) help them during inter-specific encounters.

Thinking it over, it seems likely that the local fens are incubating or feeding young in nest.

Going to walk through, and out of town, in the general direction of the route to Kolda this afternoon. Leave hotel 5:15 p.m.

Too hot; too many people; too many flies. Stop 6:00 p.m.

Ziguinchor,
October 25, 1985.

Going to go past Djibonker this morning.
Mal songs along road.

Arrive 6:28 a.m. Not full light. Mal songs quite close. NOCA. Stop. Then burst of Sen songs NOCA. The 2 singers are not far apart, although on opposite sides road. Then Sen JLR's. NOCA. Stop. Then more Mal songs. NOCA. Phrase after phrase some or most are

This Mal is singing more than usual today. Finally stops. Brief burst Sen R's. NOCA.

All Kingfishers silent 6:36.

Yellowbell sounds in distance 6:38.

Going down a "new" side path (I have not used it before). Mal side of road. Habitat is "semi-platane". More trees than at Jabor. Presumably close to mangrove.

"Chattering" R's from grove trees 6:52. Presumably Purple

Coraci, Oct. 25, 1985, II.

(64/8)

More Yellowbill sounds NOCA. Stop. More Purple sounds NOCA. See birds flying from tree to tree in usual style. Then Yellowbills and Purgers overlap apparently at random.

As usual, Purgers and nearby Long-tailed Gloss Starlings seem to ignore one another.

7:01. See single Pied perched 6 ft up bare bush. Flies off with Twitter. Quite close to swamp. See ♀ Pied perched mangrove. Then see more Pids flying along small mangrove. Lots of Twitters and other noises. NOCA.

2 Pids perched close together in mangrove. Both ♂?

Lots more Twitters NOCA.

More Purple sounds from grove edge savanna. NOCA.

7:30. Birds in general are quieter now. Altho Pids by mangrove are noisy as usual. I am starting back up path.

See 2 ♂ Pids (buddies) perched where they were earlier. Make occasional fishing plunges. Little or nothing in way of greeting on return.

Purple also same place as before. Then fly off to another grove of palms. Flight is silent. Forth. in groups.

7:40. See single Giant Perched 8 ft up in small bare tree, close to 2 Long-tailed Gloss Starlings. Silent. No interaction between the two species. Giant flies off silently. In direction mangrove. It is interesting that Pied Kingfishers, only a few m. away, did not come to "investigate" Giant.

7:46. Mal song in distance. NOCA. Stops. More Mal songs. NOCA. Stop. Then again as before. Far away.

7:42. Back to road. Yellowbill songs NOCA. Stop.

See song in distance NOCA. Stops.

Single Blackbill perched in Kad. (Kads definitely coming into leaf now) Same tree where Yellowbills perched on other occasions.

Leaving 8:15 a.m.

Strutis do seem to be absent here.

Go on to Cap Skirring after lunch. New road. Rather bleak. Only a few Pids on bridges and wires.

Coraci, Oct. 25, 1984, III.

648

Arrive La Paillotte 3:00 pm. Cool and shady. Incredible numbers of weaver birds.

Vegetation has grown considerably since '76-'77. Hotel is prettier, but perhaps not as suitable for Coraci as it used to be.

Walk around area ca 4:00 pm. Nothing very pertinent to the present study. Vegetation has grown up everywhere.

The Turdoides certainly are still around.

Start walking around again 5:20 pm. Very hot and airless leg road.

Lots of Crimifer around. In Old Palms over scrub.

6:00 pm. Long, rather complicated (Whistles rising and falling?) Mal songs, faint in distance. NOCA. Stop.

That's all. Stopping 6:25 pm.

There is nothing like a "mass flight" of Lilacs at sunset (viz M Bown in '74). Not even a single individual in fact.

Cap Skirring
October 26, 1984

Going to walk around grounds of La Paillotte. Start 6:30 a.m. Not full light yet. Lots of bird sounds, but no Coraci.

Take road to Boukat Oulof and digambering

7:18. Group 4 Purpurs dead Old Palm

7:37. One of my old study sites. Much more overgrown now. O points out that local people seem to have stopped cultivating grounds here.

Hear roller "Auh" in distance. Sounds like Bluebell.

7:50 Another one of my old study sites. This area is still peanuts. Immediately see Bluebell fly across road. Join's another on palm. Both fly on to adjacent Palm. Several "Auh"s in flight. Then sit quietly.

One flies off to Baobab. Silent.

Purpur "chattering" R's NOCA.

Coraci, Oct 26, 1985, II.

(649)

Go on to Djembuang, start back without seeing coraci

7:28 Single Bluebelly perched in palm frond in forest classe. Silent. Perching, seems to be quite alone. No voc. from neighborhood. Finally flies away silently.

Then 2 birds land on frond. Come in silently. Then one does R in semi-forward posture, facing partner, after landing.

This environment looks unusual for species. Little or no really bare ground. But it may be natural. (Presumably the species existed before peanuts were imported. See comment below.)

Both birds fly off. One brief muffled "Auh" as they go. Then hear more "Auh"s and R's in neighborhood.

I have photo of these birds.

CORRECTION. There are peanut fields here. Right within forest.

9:05. Back to first peanut field. Yellowbill song. NOCA.

Back to hotel 9:45 am. No rollers.

COMMENT: The correlation with peanut fields (= bare soil) was perfect this morning. This means that species must have been considerably less abundant a few centuries ago than it is now. How does this affect my hypothesis that pseudo sexual behavior is positively correlated with population density? It may be a support. Although Bluebellies may have been less abundant a few centuries ago, they must also have been (now) clumped or clustered, simply because patches of bare soil must have been rare and presumably scattered.

Coming back from Cap in afternoon, we see a lot of Pids.

Zuñichlor,
October 24, 1985.

Going past Tolero to first site, before white road.

Arrive 6:35 am. Miscellaneous bird sounds. Not too much.

6:43 See 2 birds fly into large leafy tree. Then hear Bluebelly R. This

Coram, Oct. 27, 1985, I.

(650)

is tree used by both Thal and Sen a few days ago.

Then see Bluebelly perched silently bare branch adjacent tree.

6:49. Redbill songs NOCA. Repeated again and again. All NOCA. Further on Plateau. See single Redbill. (Now) silent. Flies on. Quite a lot of droongos around.

7:18. First Yellowbill sounds. NOCA. Stop. Then Blackbill. NOCA. Stop. Then several overlaps between the 2 species. Singing birds are far apart from one another. Then Redbill starts to sing in distance. Again some overlaps. Then Redbill continues NOCA. Stops.

Single Bluebelly high in dead tree. Utters one R. Pays no attention to nearby vulture. Just sits. Then flies silently into low Oil Palm. Makes one feeding flybit to ground (short grass). Apparently not successful. Silent. I can hear another Bluebelly in distance.

What has happened to Kingfishers? Even the Pies are not flying in valley.

R² - flies in distance.

Alba! Single Pied flies overhead. Silent. Then 2 more. With "Isel" Notes and Twitters. (Note: I think that many of these Pies must be flying back and forth between 2 areas of rice fields and mangrove. But their destinations are invisible from road.) One Pied flies overhead. Quite alone, but utters some "Quadruplets".

7:47. Alba! Explore sand quarry area. Find 2 fairly large (100m. long) pools toward back. This is the site of a real colony of Pies. At least 15 inds. Possibly 25 or more. Lots of holes in bauls. Birds fly around with medleys of calls. Apparently disturbed by me.

They pay no attention to 3 Hammerkops.

There certainly are some ♂-♀ pairs. Are all birds paired?

7:59. 3 inds on ground. 1 adult (♀?). 2 juvs. (Definite, small. Rather disheveled.) Juvs approach adult on foot. Stretched forward, low and flat. One ind. waves wings. Clockward. Not symmetrically. Some of this behavior must be Begging. (But perhaps not all. Wing waving

Coraci, Oct. 27, 1985, II

(651)

could have been balancing.) I could not tell if there was a Begging Call or not. (Ambient noise is high). Adult retreats before juvs. A few steps and then flies off. Young are left fully exposed sitting on large expanse bare sand.

I do not (have not yet) seen other obvious young in similar positions. Young seem to have moved to new site 8:12.

♂ & ♀ sitting close together on bank. ♂ has fish in bill, crest lowered as far as possible. ♀ in "Agg V-BD" with CR. ♂ goes away on foot. ♀ follows, still displaying. Both stop.

Another ♂ 3-4 ft away, also in Agg V-BD.

(Agg V-BD obviously hostile. Presumably fairly aggressive.) ♂ with fish makes repeated swallowing movements. But does not actually swallow in fact. All this while facing away from ♀, crest still very flat. Then ♂ with fish flies off.

So there may still, or again, some "courtship" in progress!

NOTE: I have not yet seen any Pied actually fishing in the ponds here. Water is sandy, looks very opaque. So this is largely or purely a breeding colony. Presumably chosen because there are so many available nest sites of excellent quality.

8:25. Redbill singing warily. Overlapped by Pied sounds at random. Pied is not part of acoustic avoidance complex. Redbill stops.

8:27. Small pile large black army ants appears top of bank. I suppose that there could be dangerous predators of Pied nestlings.

Everything relatively quiet by 8:30. But only relatively. Going back to road 8:33.

NOTE. See Fry's argument for colonial breeding breeding in bee-eaters. Fairly convincing. But there may well be other factors involved in case of kingfishers.

NOTE. Recent observations would suggest or confirm - very strongly - that the basic social unit of the Bluebelly is the pair. Possibly inds. may sometimes roost in groups, at least during the non-breeding season. Cert-



Corvici, Oct. 24, 1985, III.

and there are trios and quartets (family groups?) at other times of the year. This would seem to be, in some sense, superimposed upon, or added to, the basic pairs.

QUESTION. Are *Struthio* more clumped or clustered than are other Halcyon kingfishers? If so, why?

Back at Hotel in afternoon. 5:14 p.m. Hear a burst of ten songs. So the species has not given up singing entirely.

Zingwichee,
October 28, 1985.

Returning to Paid colony part labor.

Park by road 6:35 am Still not full light. Fog. No Red
sounds here. Go over to quarry.

As I start, hear 2 bell songs. No car stop.

Along is quiet 6:45. No Pied sounds at all, as far as I can tell. These birds are not early risers. Purple sounds in distance. NOCA.
Stop. First Pied sounds, twitters, "Isceel" Notes, by flying bird(s) 6:46
Sounds increase. One bird utters "Isceel" ^{when} ^{we} ^{are} ^{with} ^{them}
^{when} "Isceel" Thin reedy, In flight. Probably also on ground.

Several roller type "Aul" s not far away. Completely overlapped by Pied records.

One bird flies in carrying large fish in bill. Utters "Tsee tsee tsee tsee ..." in flight. Circles pond. Lands in adjacent brush. Joined by another, but I can't see what happens.

"Tsee" series may well be "feeding call."

6:47 Redbull sounds in distance Completely overlapped by Pied
sounds. Stop

6:48 Several Pies flying back and forth with Gyrodactyls
"Tsit-tsa-tsan-see"s.

Still no feeding from pond.

Ceracii, Oct. 28, 1985, II.

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Birds usually do (at least) one U-D TF after landing. Sometimes silent. Probably also some time with sounds.

COMMENT. This constant calling makes colony very conspicuous. Which suggests that the Birds don't have to worry very much about avian or mammalian predators (or honeyguides?)

More Redbill sounds from time to time. All overlapped.

Aha! One shallow plunge into pond. Feeding? Bathing?

Single ♂ sits quietly with fish in bill. Quite silent. Crest very depressed. Occasional U-D TF (Did I use to call these "Tail bobs"?) Another ♂ preening quietly 10 ft away pays no attention.

Another shallow plunge. Bird flies to bank. Certainly no fish in bill. Sits. Shakes head. Flies away.

♂ with fish still has it in bill. Changes position several times. Several more TF's. Still silent. Is he waiting to enter hole? Could be be "inviting" ♀ ???

Several more shallow plunges. One plunger lands on bank. Head shakes. Preens. Flies off.

7:23 ♂ with fish is still holding it in bill. Has tendency to alternate between 2 favorite sites (better soil) 10-12 ft apart. The other ♂, the one first seen preening, still is around. Also silent, crest depressed. Usually 6-12 ft from fish-holder ("A"). Then 2 birds may be buddies.

Every once in a while, A makes short circular or looping flight. Silent. Not followed by buddy. A always back to one of its sites. No greeting.

See several other inds, at least 10, also sitting quietly with fish in bill.

What is all this about ???

A's buddy flies off. A remains. A third ♂ lands 4 ft away. Immediately supplanted by A. Silently. "Intruder" flies off without resistance.

A still around with fish 7:38. Makes one brief flight as if to enter hole. But immediately back to perching site.

Two Quants fly in. Yelps in flight. Land high in tall tree about 30 ft from quarry. One R on landing. Then sit quietly. For at least 5 mins.

Oran, Oct. 28, 1985, III.

(654)

Perfectly visible. But quite ignored by Pieds. Giants eventually fly on.
Then they come back to same tree 7:47. A few Zelps coming in.
Then sit silent.

One or more Pied(s) chased vigorously and repeatedly by brownish
passerine (warbler? bullfinch?) with white sides of tail. Passerine utters
harsh sounds. No restraint by Pied(s).

7:45. A has either left or swallowed fish.

Giants (also) seem to have gone. Silent.

Quite a lot of Pieds seem to have left colony. Presumably gone to feeding
grounds.

Yellowbills singing. Complete overlap with Pieds, but not with
any other coraciiform.

Passerine still chasing Pied(s). Must be defending nest in nearby tree,
I think. But see also below.

Leaving colony myself 8:00 am

Hummer stops arrives at leave. Ignored by Pieds.

ADDITION: While I was watching Pieds, I saw a Bluebell chasing
kite. "Amb" notes. Then peels away silently, does semi-soar semi-swoop.
Presumably kite competes with rollers for food?

Walk along road for a while without seeing anything pertinent.
But I do hear roller(s) from time to time.

Then see 2 Bluebills perched quietly top dead palm in field low scrub.
And I also hear 1 Bluebell R from across road.

Leaving 8:25.

COMMENT: For all I know, the "passerine" involved in the
chasing mentioned above was a honeyguide (Indicator). The white on tail
was suggestive. But why should a parasite be so aggressive toward its
host? (And this bird was both remarkably aggressive and persistent.)

COMMENT: It has been noted, repeatedly, that Pied Kingfishers
have adopted a "high energy expenditure" strategy. So - in a way -
have Giants. They may not however (have I ever seen actual feeding??);

Coraci, Oct. 28, 1985, IV.

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but they do move over wide areas rather frequently. They also vocalize relatively frequently. Why don't they nest colonially? Size may be a deterrent. But large herons and ibises nest colonially. Of course, some herons and ibises may hunt communally - they have other reasons to be gregarious. Still, the problem is curious.

Jay is probably correct in saying that Giants are more nearly primitive than are Pids. Viz the vocal repertoires. The sounds of Giants would seem to be easy to homologize with those of *Halcyon* spp. and rollers.

Why are the sounds of Pids so different in quality?

Zurigochor,
October 29, 1985

Arrive White Road site beyond Jabor 6:40. Some bird sounds but no Coraci. Start down side road.

Some roller-type R in distance.

Further on, see single Lelae perched quietly top of one of its "usual" trees. The pair here certainly is resident.

6:55. Nothing of interest in stroke area.

Single Swallowtail perched high top tree.

There is a Palm Nut Vulture around. Sits in several trees. No one seems to pay any attention to it.

Everything very quiet 7:05.

7:14 Giant flies high overhead. Utters series of Yelps. This species does cover wide distances.

Yellowbill sounds in distance. NOCA. Stop. One Sen song. NOCA. Another Sen song. NOCA. Coming from tall leafy tree usual area. This bird, or pair, also resident. Another Sen song from adjacent scrub. NOCA.

7:37. Single Blackbill flies by. Utters Whistles. Partly overlapped by Yellowbill song in great distance.

7:55 Rather far down road. Single Abyssinian flies from tree to tree.

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Utters several long "Aaaaaah" notes in flight. Then one long note of same tone, followed by "Chatter", i.e. "Aah aah aah" — —
in tree. (This is tree in which I saw Abyssinian a few days ago. Quite near village. Quite a lot of trees. Vegetation seems rather thick for the species.

Another single song NOCA. Several more phrases NOCA. Then phrase after phrase after phrase. This bird seems motivated. Most songs are NOCA. Then a few are overlapped by Yellowbills. Song stops. Yellowbills stop.

8:13 Single Bluebelly perched silently dead palm frond over low scrub. Blackbill Whitties dub songs NOCA.

Near Purple R's from grove near ricefields. NOCA. Stop Yellowbill songs. NOCA.

Going back up road, see 2 Bluebellies. Silent. In palm over millet. Near R's from another Bluebelly in distance NOCA.

8:43 Approximately usual streak area. See single streak beating large insect (beetle) against branch small bare bush. Flies away silently. At least this ind. is still resident.

8:51 Up near cross roads. Single Abyssinian chases hawk. Utters long "Aaaaaah"s in flight.

There may be 2 "single" Abyssinians in this general area. May thousands of m. apart.

Abyssinian continues to give "Aaaaah"s from nearby trees for some minutes. The species may be less "stolid" than Bluebelly or Zebra. Leaving 9:00 am.

Zuigardos
October 30, 1985

Going to Pied colony beyond Jabor

Park car 6:34 a.m. Still not quite light.

One song NOCA. Pids not and 100 m from road. Colony is, in fact, quiet 6:42. Some birds start to fly and to vocalize a minute later.

Coraciiform R's mainly, Purpur? Completely overlapped by Peds.
Most common Ped calls are singlet and doublet "Tset"s 6:48.

Birds obviously not greatly excited. More Twittering 6:50.

Some birds just sit quietly for minutes on end. Not hungry?

There is no plunging now. Presumably birds do not begin to bathe, or drink, until sun comes up and it begins to become hot.

Butorides striatus standing on shore is ignored. It flies off.

First shallow plunge 7:01.

First Redbell "Whup"s 7:02. Overlapping Peds. Then Blackbill Whistles. Not overlapping Redbills, but overlapped by Peds. All as expected.

There certainly are ♂-♀ Pairs. Males sit quietly close together, in bushes or on ground. No display.

7:04. ♂ flies around with fish in bill. Utters singlets, Doublets and Triplets. Lands silently at one of A sites. Sits. Second bird lands a few feet away. Also ♂ with fish in bill sits quietly. Then a third ♂ lands quietly a few feet away from first two. Also with fish in bill. Also sits quietly. All 3 ♂'s have vent just slightly erect.

Supposed panemio or honeyguide gives brief chase 7:13.

First Ped ♂ A area eventually swallows fish flies off.

Back (?) a few mins. later. No fish. Of the other 2 birds, only one still has fish. Occasionally changes site. All sites same as those used by A a few days ago. This may, in fact, be A.

Occasional V-D TF's especially after landing.

The general A area seems to be a bachelor hang-out.

7:21 3 ♂'s A area. None with fish in bill now. 2 sit very close together. Then one advances on the other. In low F posture (neck not very extended) Bill open. Twitter. Also have raises and spreads wings. Then relaxes. This looked as if it could be "Begging". But the performer did not show any physical signs of immaturity. Rather large and smooth. See sketch in pad.

7:28. 4 ♂'s in A area. One with fish.

Coraci, Oct. 30, 1985, III

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More plunges now. I think that they probably are drinking Little or no "shaking out" or preening immediately afterwards.

Now 3 ♂'s A area. Two with fish.

7:31. Pair of Quarts fly in to usual tree. Yelps in flight. Land 50 ft up, 2-3 ft apart from one another. Elaborate Greeting. Preening of Yelps and R's. Each R (but apparently not Yelps) accompanied by more or less extreme Wingspread. Then birds sit silently.

One more Yelps-R. No Wingspread.

Now 6 ♂'s in A area. Still only 2 with fish.

This does look like a Lek. But certainly not a single ♀ has visited this area (yet) this morning.

One Quirt makes circular flight. Yelps and R's, probably by both sides. Back. More Yelps and R's. No Wingspread.

Why are these Quirts sticking around. They have made no effort to investigate possible breeding sites. Just attracted by Pied colony. Do Quirts use same sites as Peds, but later ???

7:43. Group of ♂'s in A area down to 4. Two (still) with fish.

The 2 Quirts fly away together 7:46. Lots of Yelps and a few R's.

Group of ♂'s in A down to 3. Two with fish. The fish-holders seem to be more persistent than the non-fish-holders.

It is beginning to get warm now.

One of the fish holders at A swallows fish.

A group back to 5 again 7:50. Still all males (this cannot be coincidence). One with fish. Two inds. fly away again.

Several inds. go into holes for bank. Too far away for me to see if they are carrying fish.

7:55 "Last" A ♂ has swallowed fish. Two of the ♂'s fly away. Morning "display" or "assembly" seems to be over.

Single Pied and single drongo sitting 3 ft apart top tree. No visible interaction.

Single bird left A area is just sitting.

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NOTE: This A area cannot be a "loafing station." Via the non-appearance of females. And the fact that males leave as morning wears on — just when loafing would be expected to increase.

Presumably the A males are demonstrating both that they can catch fish, and that they are well enough fed to afford to refrain from swallowing each fish immediately.

Going back to road 8:05

One large peanut field. No coraci immediately visible.

Blackbill Sings. NOCA. Stop. Start again NOCA. Stop. See songs in distance NOCA. Stop.

Nothing very significant. Leaving 8:40 a.m.

NOTE: The highway here reaches two stretches of plateau. Vegetation is varied, but fairly open as a whole. Scattering of dead and bare trees. Area looks good for Strakids. But I have not been able to detect any. Why? The species may really be comparatively rare in this part of the Casamance, at least at this time of the year.

Zugzwang
October 31, 1985

Back to Red Colony this morning. I will photo. Arrive road 6:40. No coraci audible.

Only a few Pids starting to become active 6:45. Flying back and forth with usual vocs.

"Aerial display" certainly is not stereotyped.

One ind. (not visible) lands beside ♂ 8 ft up top small tree or bush. Lots of high pitched "Dreeseese" Notes (Trills???) as greeting. Both birds sit. One comes flies off.

A area still vacant 6:56. Also no plunges yet.

Blackbill Whistles 6:59. NOCA except for Pids. This is first hornbill sound this morning. What happened to Redbills.

Corvax, Oct. 31, 1985, II

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7:02 ♀ (!) lands A area. Sits quietly. No fish in bill. Flies off.
Redbill sounds 7:05. NOCA except for Pids. Stop. Yellowbill sounds
NOCA except for Pids. Stop.

Several ♀ Pids sitting quietly in bushes. Not incubating now!

First ♂ in A area 7:09. Fish in bill. Just sits. Second ♂ with
bill arrives less than a minute later. Were the 2 ♂'s foraging together? Buddy
system again? One of the ♂'s flies away silently? The other just sits. Does
occasional U-D TF. Crest more or less depressed.

Makes irregular flight, still carrying fish. 200m. radius, 15 ft up.
Quite silent throughout (Definite!). Back silently. Does TF on landing.
Sits as before. This might be "real" Aerial Display.

Another ♂ in with fish. Utters Twitter as it comes. Then sits
quietly.

A third ♂ comes in. No fish. Immediately supplanted and chased by
first ♂. An outsider of some sort. Males may be organized in real clubs.

Another ♂ in with fish. Utters brief Twitter as it paces over
a sitting ♂. Lands. Sits quietly.

One of the A ♂'s flies off. Briefly flutters at entrance of nearby hole.
Back to A site. Still with fish in bill. Sits. Then makes 2 more very brief
visits to same hole in next 2-3 minutes. Hovers in front. May even perch
briefly. Always silent. Always back to "like". Still with fish in bill.

While I am writing, I see this ♂ actually enter hole. Stays inside
for ca. 2 mins. Then out silently. No fish now. Flies to usual "like" bank.
Then makes 3 shallow plunges into water. Back each time. Vigorous BW.
Again and again. Finally starts to preen.

What went on? I think I know. ♂ was first "showing nest
site". (There are parallels among other kingfishers.) Then it probably
did some digging in chosen hole.)

All this seems very reasonable. The peculiar thing is that
there is no ♀ visible. Am I misinterpreting situation? Is this
male actually mated? Is it just waiting to feed mate and/or young?

Coraci, Oct. 31, 1985, III.

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I don't think so.

At one time, there are 7 ♂'s in A area. Two with fish ca 7:35
Brief burst Giant Egrets in distance.

7:44. Supposed plover or honeyguide appears. As usual chases one Pied. With usual harsh sounds. Then pulls off, chases a second Pied.

(Note. Bird not only has white outer tail feathers but also smallish bill.)

I must check literature for honeyguides parentering kingfishers!

"Leik" is empty from about 7:40 onward. But there is still a fair amount of activity in colony as a whole. 7:50.

One bird with fish (back) A area.

♂ with 2 other birds. Far bank. One of the other birds is ♀. Looks young (breast patches faint and smudged). The third is another ♂. Doesn't look particularly young. One bird (probably ♀) approaches first ♂. In more or less forward low posture. Vocalizes ??? No wing movements. Approach ♂ responds by twittering loudly, in BD (bill wide open), CR. Then all subside. Second ♂ flies away 30 ft. Was this a Begging attempt. If so, unsuccessful.

I have been photographing mud. See many birds enter holes in far part of colony.

NOTE: There are a lot of holes in bank, on top of which I have done most of my observations. It is conceivable, therefore, that ♂'s have congregated in A area simply because they have been afraid to go to holes below me. Again, I don't think so. They do not act shy. And when we move far away, no one goes to these particular holes. (There are many, many more holes here than there are pairs. Many are un-used. Colony looks old.)

8:15. Several ten songs from adjacent brush. Also Purple sounds. Both NOCA except for Pied.

Leave 8:30 am.

NOTE: It is interesting that I have not seen any copulations or mountings yet this trip. In spite of the fact that the colony is crowded.

NOTE: The hole-visiting by one of the A ♂'s did not seem to be triggered by any obvious external stimulus.

Going out along road to Ossouye this afternoon
Arrive Djoulou 3:50. Very quiet. Nothing audible by road.

Going down path. Blackbill whistles. NOCA. Stop

S-E Pieds rather scattered in Mal-Sen area (tide is high). But neither Mal nor Sen is visible or audible at the moment.

Single Sen flies in silently. Perches on a usual bare tree. Fish in bill swallowed without battering. Then leaves silently.

One flying Pied swoops at perched Pied. Perched bird reacts by full Wingspread. With vocs?

B. thinks that he saw one Pied feed another

Group of 4 Pieds close together in bush. One is male. Another (sex not identified) has fish in bill. Just sits. In the best Tabor style. (Note: one of the other inds. may be ♀, but I can't be sure.

Certainly there was no visible interaction between Sen and Pied.

♂ still has fish in bill 4:12 p.m.

Go back to road and continue

4:44. Two Abyssinians on wire before the Ossouye bridge. Sitting quietly on wires, 2 ft apart. A pair? Is species starting to come in? One flies off silently. Lands silently in Kal.

Go on to Ossouye and then back. Abyssinians have not moved. Still sitting quietly.

B (Baillon) says that he once caught (in net) a Sen being chased by a Blackbill.

Ziguinchor,
November 1, 1983

Going to Pied colony again.

4:35 On road. Just past Tabor. Still quite dark. Hear Sen songs. NOCA. Then a long series of Streak Doubts. Also NOCA in response to Sen. Stop. A few minutes later, more Sen noises.

Coraci, Nov. 1, 1985, I

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Both songs and HR's All NOCA. stop. Then few songs 6:41. stop. This bird is motivated. There probably are other few sounds in distance. On trying to record. Difficult.

6:43 First Redbill songs in distance NOCA. stop.

Arrive road near Pud colony 6:50. Lots more few sounds. Both songs and HR's All NOCA. (Puds not audible here. Birds have not yet started to fly back and forth over road.

But some birds are already in voice when I get to colony. Nothing in A area yet. 7:01.

First Blackbill sounds in distance. NOCA except for Puds.

7:11 First ♂ A area. With fish. Utters a few Twitters after landing. Then sits. Another bird comes in. No Greeting. Both fly off. One (he) appears. With small fish. Sits. Then flies to hole. Heaves at entrance. Back to A area. Then visits a second hole 9"-12" from first. Enters. Stays in for approx 2 min. Out. Plunges into water. Back to A area. Fish has disappeared. Sits. Preens. (Also BW's?)

7:23. Only 1 ♂ A area. No fish. Another ♂ flies in. With fish. Sits. Flies away to far part A. Sits. Supplanted by another. Flies away, still with fish.

Now 2 ♂'s with fish A area.

Another ♂ arrives with fish. Sits. Flies off. Big, rather high figure of 8 loops over pond. Largely or completely silent. Back to A area. Mandibulates fish for a long time. Then swallows it.

7:39. Single Giant (♀) has arrived silently. Sitting 15 ft up in nearby bush. 2 Puds perched 2 ft away. No visible interaction. Then another Giant flies in. Silent. Supplant or semi-swoop. All 4 birds fly off. Giants go on. Puds back immediately.

7:43 A area is vacant. It has not been used very much this morning. Why? Chance? Or could it be that we have been standing farther away than usual???

Things are calming down now throughout colony.

Coraci, Nov. 1, 1985, II.

664

7:50. Walking back toward road. Sen in small tree starts to sing. Phrase after phrase after phrase. All NOCA (Pids not audible, at least to me). O. records with cardioid.

When we get back to hotel, we hear local Sen singing. Quite frequently until at least 9:30 a.m. Probably also some R's and/or JLR's.

The Sens certainly have become very vocal this morning. Why? Perhaps significantly, the sky is overcast, and the T° seems distinctly cooler than it has been since our arrival on Sept. 30.

Going back this afternoon to area where Strick was heard this morning. Arrive at presumed site 5:05 p.m. Very hot and arid. Mixed plateau vegetation, millet and peanuts.

Several Yellowbill songs. NOCA stop. Redbill "Whup"s. NOCA stop. More long series Yellowbill "Pee" Notes. NOCA.

Slight breeze coming up 5:22.

5:29. See single Sen perched silently bare tree. Starts to sing. Phrase after phrase. All conventional. Some semi-BL's at beginnings. All NOCA. Stop. Ind. continues to sit.

See Abyssinian perched top distant Kad (beginning to leaf). Silent and apparently alone. Far from Sen.

5:41. Abyssinian flies off silently. Sen is still sitting quietly same perch. Still apparently alone.

More Yellowbill notes. NOCA.

Sen finally goes silently 5:52 p.m.

Walk along road. 6:04 p.m. See single Naevius perched 10 ft up top small bare tree near millet field and hut. Silent. But there is brief roller-type "chatter" R at great distance.

Going back to car, hear Sen JLR's. NOCA.

Leaving 6:22.

NOTE: Naevius certainly is by far the least common of the local rollers. Competition with Abyssinian in plateau habitats?

Zenaidura,
November 2, 1985

Returning to same site this morning. Arrive 6:25 a.m. Still quite dark.

See songs immediately. By several inds. far apart from one another. Not usually (never?) overlapping. All conventional NOCA. Also 2-3 Mal songs in distance. NOCA. Between few songs.

See birds nearby. NOCA. Slightly unusual in form. R phases are long. Second parts of R's are noticeably lower than first parts. \wedge minimum. Then some are reversed or fluctuating. \wedge minimum or \wedge minimum.

Everything temporarily quiet 6:40

First Redbill songs 6:43. NOCA. Stop.

See bird perched 18 ft up in tall bare tree. Silent. Apparently alone. Sits and sits. Sudden, makes feeding plunge 6:53. Apparently into field of Gros Mil. Back immediately. With very large insect in bill (probably grasshopper - long legs). It makes a great deal of battering. All this is quite silent.

More Redbill songs. NOCA.

See bird disappears. Silent.

I am going to walk down road.

→ *Zenaidura* See bird immediately. Possibly (probably) same ind. Sitting 12 ft up in leafy Kad, over full of solaraceous plants with Okra (lots of bare earth). Silent. Definitely alone. Sits. Then another bird comes in. Presumably mate. Both inds utter R's during approach and landing. No Inters. One slightly fluctuating. The incomer, at least, does wide Wingspread with R's immediately after landing. Facing mate. Then the 2 birds sit silently. About 15 ft apart. Then first bird flies away silently. To leafy tree 30-60 ft away. Sits. Both inds. still quite visible to one another. After some minutes second bird flies away silently, to another tree. Not

Coraci, Nov. 2, 1985, II.

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close to its partner. The 2 birds are keeping their distance from one another. But not too great distances. They certainly are not courting. Nor do they seem to be incubating.

17:17 Hear 3-4 roller "Aaaaah" Notes in distance. May overlap Redbill "Whup" Notes in distance.

Further on, see Redbill feeding bare ground another field (mowed crops). Silent. Redbill may be an important competitor of local Senns (and Stricks?) And rollers.

See Sen same bare tree as yesterday. Silent and alone.

Blackbill sings. NOCA. Stop.

See HR's from another area. NOCA. Then full songs from another ind. NOCA. Phrase after phrase.

Another gray and relatively cool day.

More Blackbill songs from time to time. NOCA. Stop. One burst of Redbill sounds. NOCA. Stop.

More Sen songs. NOCA. Stop.

What has happened to Stricks??? Have they left area?

Lots of fighting among drongos.

Nothing more of significance. Leaving 8:20 a.m.

Zwigelson
November 3, 1985

Going to record Dziboules area. Arrive quite dark.

See songs. NOCA. Stop. Then Mal songs. Phrase after phrase.

I should have got it. All NOCA except one, overlaps Sen HR in distance. The Mal songs are slight peculiar. Two notes — —
Individual identification?

Birds generally quiet by 6:55. Go down side road.

Blackbills singing. NOCA.

See HR's. But quiet. Completely overlapped by Blackbills.

Coraci, Nov. 3, 1985, II.

(667)

in distance.

See 2 fens 20 ft apart in separate small trees. Silent. Then one flies over to join the other. HR as Greeting. One ind. does Wingspread facing away from partner. (O should have caught HR. Yes!)

One fen flies off. The other follows a few minutes later. HR's as Greeting again. (Birds invisible).

7:21. Pair Giants fly in to dead tree. Yelps and R's. Noca. Olga records.

Then brief few songs. Noca stop.

Watching ♀ Giant sitting quietly in tree. Pays no attention to Palm Nut Vulture only a few feet away.

So far this morning. There have been no sounds of Purple or Blackbills at this site. Seem to have moved on, at least for time being.

7:37. ♀ Giant still sitting quietly. Does occasional V-D TF. Crest only semi-raised. Ignores Pids flying around not far away.

Back to road 7:45

Blackbills singing. Noca. Olga records. Bird stops.

Large group Purple (fully) appears. Noisy. Noca. Apparently on way to one of their "usual" palm groves.

Out toward Orange. See single Abyssinian on wire.

Reach Pid area 8:45. O photos.

Birds generally quiet. Some carrying fish in bills. One ♂ perched with fish seems to be waiting to enter hole.

Some inds certainly perch at scattered sites, nests, mangrove, etc. Is there any individual territory apart from nesting hole?

7:05. 2 Abyssinians fly by. A sort of pursuit. Pursuer utters "Aaaaaah" notes. Accelerates and swoops, still with notes. Then soars silently. Both birds continue in more or less same direction.

Hear more "Aaaaaah"s in distance.

Abyssinian is mobile when aggressive! More mobile than Bluebellies in comparable circles.

Coraci, Nov. 3, 1985, III.

(668)

9:14. More roller type sounds in distance. "Chattering" R's. Can courtship be beginning?

Leaving 9:25 am

On way back, see small kingfisher perched wire edge road over mangrove. "Corythornis" crinita. Identification definite. Sits. Flies away. Back Sits. As far as I can tell, silent throughout. I haven't seen this species earlier in this trip? Is it (also) migratory??

NOTES:

We have been listening to tapes taken during the last few days. Today was the first day that we were able to use the parabola. Before that we used Semihensler Cardioid alone. So far we seem to have got the following.

Many vocs of Pied. All with Cardioid.

Many songs of Gen. All with Cardioid.

HR's of Gen. With Parabola.

Songs of Mal. With Parabola.

Yelps and R's of Giants. Parabola.

Songs of Blackbills. Parabola.

There also is faint Blackbill or Yellowbill song in distance in one of the Pied sections. ATTENTION. Today's identification of Blackbill was definite. But I am not sure that earlier inferences, notes on paper or tape, are always entirely reliable. When I am preoccupied with other things - listening with only half an ear - I may confuse Blackbills and Yellowbills at a distance.

Listening to records of Pied Kingfishers, it has become obvious that the sounds of the species are not as loud to the recorder as they seem (subjectively) to be to human ears. Could they possibly range into the ultrasonic? To frightened mammals???

This afternoon going to visit heron colony with Baillon. Along a mangrove before Moquis (route to Kolda). Starting 3:20 pm. Mangrove called something like "Kidel". Supposedly fresh water.

Lots of Pieds around

Coraci, Nov. 3, 1985, III.

669

5:14. Near plateau area. Hear Sen songs

5:21. Region pure mangrove. Mal songs. Phrase after phrase. All NOCA. (even the Pids are quiet for the moment)

5:45. Beached edge of Palm grove. Sen songs phrase after phrase. All NOCA. Stops. Brief burst of FLR a few minutes later. Also NOCA. Further on, see 1 ♂ and 1 ♀ Giant (not close together). Also one crustata (Malachite). All quite silent.

Still further on, more Mal songs. NOCA. Stop

Then we begin to have trouble with motor. Start paddling. To and from immense heron colony. Since paddling is so quiet, we see lots of birds along banks and hear lots of sounds.

Much of the mangrove runs between "dry land", plateau habitat and palm groves, on the one hand, and mangrove (in supposedly fresh water) on the other hand.

See Giants several times. Always silent. Usually on trees dry land side. At least once on mangrove side.

Many Mal songs. Both sides. This species does penetrate into mangrove quite frequently. It is the Halcyon which is most likely to overlap Pids.

Some Sen songs. Usually dry land side. Once on mangrove.

There were Pids around, but not too many of them. Are they particularly likely to compete with herons?

Zugmiller,
November 4, 1985

Going to explore Enampor road (near Brui) again

Both Mal and Sen songs on way. Both NOCA.

Arrive site 6:33 am. Rather quiet. No Coraci visible or audible yet.

Coraci, Nov. 4, 1975, II

(670)

First he whistles 6:41. Once a few notes. Either Black-bill or Yellow-bill Noca. Then definite Yellow-bill "Pee"s Noca. More Yellow-bill sounds off and on. Still all Noca.

Very dull 7:26. Bluebellies seem to have left area. The local Mal has not shown up. I am going further down road.

7:38. Down by huge rice field. Single Giant flies overhead. Silent. Mal songs in distance (from rice fields). Noca.

Back to first site 8:00 am. Nothing of interest. Yellow-bill sounds in distance. Noca.

Near highway. Stop by overgrown field with tall dead trees. Looks good for Coraci. But none are visible or audible.

Then whole burst Yellow-bill "Pee" Notes from Fromager. Noca. Then a burst of Giant Yelps and Rattles. Completely overlapped by Yellow-bills. Both species shut up. More Giants in distance.

Leaving 8:20 am.

COMMENT: Almost this whole area is marginal zone between dry land plateau and rice fields. Many sites look suitable for Coraci. Why does it seem to be absent? I could suppose that the local forms might be "coincidence" between Mals and Bluebellies. But neither of the latter seem to be particularly common.

Go along road to Kolda in late afternoon. Mal songs along road. Arrive Niaguis site 5:45 p.m.

Wing → Helicon pointed low in tree by ex-pond. Silent and alone. Has black scapulars but little or no blue on breast. What is it? Small, fuzzy. Parula-like. Pasture quite unutilized. No BU. Answered by presumed mate far away. Flies off, presumably to join mate.

Lilac sounds in neighborhood. Noca. (Note: There are "anti" type notes. In singing. But less nasal than Bluebellies).

6:21. Lilac flies overhead. "Acaash" type notes in flight. Lands in tall Fromager. Sits quietly. Then more harsh notes. One brief R in middle.

Coraci, Nov. 4, 1985 III

(671)

Leaving 6:25 pm

COMMENT. My confusion about the Sen this afternoon was revealing in a way. The 2 species, Thal and Sen, do look remarkably alike. (The amount of black visible depends upon position of wings.) In the circumstances, it is remarkable that there are no records of hybrids. (Certainly, I have never heard an intermediate song.)

Zunguichor,
November 5, 1985

Going back to Red colony beyond Tabor, for more recording, this (first) time with parabola. Arrive 6:40 am. Quite heavy fog.

The birds are comparatively quiet at first.

First ♂ A area 6:54. No feed. Sits quietly. Flies off.

6:58. Both ♂ and ♀ (!) land A area. Simultaneously, 4-5 ft apart. Both sit. Crests semi-depressed. ♀ silent. ♂ utters 6 syllables and doublets, does many TF's. Neither mid. has feed. Then both fly off together. With quarters. This is real pair.

One bird circles high over pond with feed in bill. Utters single "Tset" Notes in flight.

♂ lands A area. No feed. Sits. Flies off.

I have been recording. Playing back, I realize that "single" "Tset Notes" are really rapid "trills". But I will continue to use old terminology.

7:22 A area not being used at all. Is it because fog persists, and sun does not reach area ???

Blackbill sounds in distance. Overlapped by Reds.

Then single ♀ lands A area. Sits. Flies off silently.

Question. Were ♀'s reluctant to use A area on previous days simply because there were "eager" ♂'s there?

Purper sounds in distance. As usual completely overlapped by Reds. Probably also overlapping Blackbills.

Coracii, Nov. 5, 1983, II.

672

♂ Red circles over pond, with fish in bill. Apparently silent.
Leaving 7:35 Go on to White Rock Park usual Crossroads
Blackbill foraging in distance. NOCA. Stops

Fog is still strong, even here on plateau.

Go on down side path to "Struck" area. Nothing of interest audible
or visible at first.

7:59. Sudden burst of Struck Doublets from scrub. So the birds are
still around after all. Then see 2 Strucks perched close together 4-5 ft up
in bare bark. Just sitting, some preening. These birds really are tame.

Swallow tail in distant Kad.

One Struck flies off silently. Looked like feeding pounce, but the
ind. does not return to perch immediately. Comes back a minute later. No
greeting. Then see 3rd Struck perched quietly 15 ft away in Kad. It
does sudden single Flick-Spread when small passerine (Pewee?) flies
close by. (More) evidence that Flick-Spread is hostile.

Another silent feeding pounce.

Song is rare in this species at this phase of the cycle.

Another silent feeding pounce. Back silently. Batters insect. Immediate
ly joined by companion (juv.). No greeting.

Still another pounce. Feeding quite active now.

Now there is only one Struck in bush. Flies off silently. We hear 2
short bursts of Doublets in neighborhood in next few minutes. Both NOCA.
Song phrases of this species are short.

Then long period of silence. Birds seem to have gone to feed somewhere
else. Back into scrub in direction scrubby fields.

Going further down path 8:52 am.

8:54. See single Struck perched 17 ft up bare branch. This probably
is not a member of the group that we have been watching. Flies off silently.

On way back, O photos and records Blackbills foraging. Both
members of pair do repeated Wingflutters at climax. A nearby pair of
Blackbills sings nearby. The 2 pairs overlap, but NOCA.

Coraci, Nov. 5, 1983, III.

673

Still further on, 9:17 am. Tall dead tree. With one Lilac, one (singing) Blackbill, at least one Cornucilla. Short-tailed glauc. Starling. Lilac is displaced by something (starling). Changes perch. One harsh note in flight.

Blackbill sings NOCA. Stop. Redbill sings NOCA. Stops. Blackbills start again NOCA.

9:32 Along highway. O photos Bluebills perched top dead palm. It is just sitting quietly. There is 1 Bluebill R across road. This group of 2-3 inds. seems to be sedentary now.

Zuñigachon,
November 6, 1983

Going exploring this morning. Out along road to Kolda. Lots of Sen songs near town. Then take side road, probably parallel to the mangrove we went up the day before yesterday. Plateau country. Rather heavy fog.

Up to bridge. Then turn around 7:00.

Blackbill sounds NOCA.

7:15 Series of Mal songs. In each phrase, Whistles first fall and then rise. The songs of this species seem to be quite variable. Should facilitate individual recognition. All phrases are NOCA. Stop.

Then everything goes quiet. Fog does seem to be depressing.

7:27 More Mal songs. Probably a different individual. Whistles descending in conventional manner. NOCA. Stop.

It is interesting to find Huls so far in plateau country. There are lots of trees around, but they are fairly scattered.

Sen songs from approximate area Huls heard earlier. NOCA. Stop. Then Mal songs in moderate distance. At first NOCA. Then Sen songs more phrases. Completely overlapped by Mal. Apparently at random. The birds must be 1,000 m. Apart. Sen stops. Mal continues. It is

Corvina, Nov. 4, 1985, II

674

obviously coming nearer. Mal sings phrase after phrase. All NOCA
seen quite silent.

Was this a "duel." If so, Mal won.

7:35 Now there are 2 Mals singing. Phrases overlap. One Mal
high in leafy tree. Makes circular flight with 3-note songs. ^ — —
Back silent.

See ^{Overlap} songs a few more phrases. Completely overlapped by another
Mal in distance. Apparently at random. Then everything silent.

Fog still thick. 7:45.

More Mal songs. NOCA. Stop. See songs a few minutes later. NOCA
Phrase after phrase. Stop. One Mal song. Then one Mal song. Not overl
apping. Then more Mal song. Then more Mal song. Mostly alternating.
Partial overlaps. The 2 inds. are far apart. If they are "dueling", it is
the Mal who is "answering" ^{Response} Sen, not vice versa. Then Sen shuts up.
Mal continues NOCA. Then stops. Then more Sen sounds. Songs
and FR's. NOCA.

Both Mal and Sen continue to sing for some minutes. Off and
on. Not very excited. Some partial overlaps. But the inds. of the 2 species
are very far apart.

Then 2 Mals, far apart, continue to sing. NOCA. Sen silent.
But the 2 Mals overlap one another. Stop.

Mal seems to be vocally dominant here.

Sen sings again NOCA. Stops.

Stricks apparently absent from this area. Why? Habitat looks O.K.

Everything very quiet 8:00 a.m. Fog still around.

Starting back toward highway 8:22.

COMMENT: This morning's observations indicate that relations
between Mals and Sens are variable. Still it must be significant
that I never see face to face encounters.

Although Mal may have "won" singing contest, the (nearest)
Mal moved off eventually. Not, apparently, the nearest Sen.

Coraci, Nov. 6, 1983, III.

675

Is it also significant that there were no Bluebellies around?

Out along same road in afternoon 5:21. Edge trees and rice field, before Mal-fen area, near roller R's, catch glimpse Blue wings. Get recording equipment out. Rollers seem to have gone. Mal songs. NOCA. See Bluebelly distant palm. Probably several birds in area.

Actually at least 3. Two in live palm. One on dead palm. All sitting quietly. Silent. No reaction to passing Black bill. Then 4th ind flies in to join "pair". Silent. No greeting.

4th ind flies off. Birds leafy tree some faint, creaking "Aaah" & then R. Then silent again.

One ind. joins another in tree. Slight R as greeting. Then silence.

Then two performances of R-creak-creak. Is this weak R-flur?? Should "Creak" be recognized as a partly independent category.

Going on 5:55

NOTE: Nearby village is Boulom.

Go further along road. Lots of Kingfishers (fews and presumably Mals, and one Pied on dry land), also several Bluebellies. Quiet.

Zuquichon,
November 17, 1983

Back to same area (bridge road - Boulom).

Arrive 6:30. Still quite dark. See Suigo phrase after phrase. NOCA. Stops Mal songs NOCA.

Then several Mals Suigo. Far apart. Overlapping one another. Then both Mal and Suigo in distance. Usual (perhaps not always) Mal-fen-pause-Mal-fen-pause... Then silent.

6:36 See HR's. NOCA stop.

Then Mal songs NOCA stops.

This is fairly stereotyped this morning.

Coraci, Nov. 7, 1983, II.

676

Not much fog this morning

Woodhoopoe sounds from palm grove NOCA.

The first burst of Kingfisher singing was brief. No more than 5 mins at best. In fact, most of general DC is over by 6:45.

Bluebelly, apparently alone, utters several R's in palm grove. NOCA. Stops. Then more Bluebelly sounds in next few mins. R's. "Auh" notes. And a R-slur. All in distance. I don't know if I get this or not.

Some mist over rice fields 7:00. Only the Longtailed Gloss Starlings are noisy now. The local Bluebellies obviously are not in breeding condition.

One Bluebelly just sits, cold and damp, 12 ft up live palm over rice. Sings songs in distance. 7:15. NOCA. Stops.

Bluebelly makes silent flight to ground. Up again. Lands beside partner. One brief soft R as greeting. (Some R's are low intensity.)

Now see 3 Bluebellies. A "pair" and a detached ind. Latter flies off. Silent. Lands in distant tree. Utters several R-creeks.

Going further down road 7:35

Find Sen singing by football field. Same place as yesterday. At first NOCA. Then Mal sings a 1000 m or so away. Some overlaps. Some alternation. Then Sen shuts up. Mal continues. Sen starts again. Some overlaps. Some alternation 7:43. If anyone is answering, it is Mal. Some stereotypy. Mal starts when Sen is halfway through phrase. Then some random overlapping. Some R-phases of Sen are particularly long, fluctuating at end. Mal shuts up. Sen continues NOCA. Then stereotypy again. Again Mal starts when Sen is half way through. Then some randomness. Then both stop at about same time.

Sen starts again a minute later. Answered by Mal almost immediately. Some overlaps. Some alternations. Sen stops. Mal continues NOCA. Then Sen starts again. Then overlaps. More alternations. Sen answers. Mal a few times. Then Mal answers Sen.

So answering is "two way". But not necessarily reciprocal during any given.

Coraci, Nov. 7, 1985, III

(671)

Then both species stop. Long period of coraciiform quiet.

These 2 birds certainly have a social relationship.

Go further along road. Find pair less. One 20 ft up in palm, the other 5 ft up on dead stump. Over rather sparse unkempt rice field. Both sitting quietly. I get out Parabola. Palm tree bird utters series of R's. Very loud and metallic. Phrases not long. No Intro. No trace of fluctuation. From unritualized semi-alert posture. Obviously hostile. Presumably provoked by us. Then bird shuts up. Continues to sit. Obviously not really alarmed. 8:15.

So the species has at least 3 R-type sounds. "Pure" R, long R's, and HR's. Plus, presumably, harsh notes ("chatter").

8:30. Further along. Plateau. 2 Yellowbills. Presumably mates. Long series "Pee" Notes - song. Some with Bowing. Oricords.

8:53. Still further along road. Still plateau. See 2 Bluebellies. Perched several 100 m. apart, tops dead Oil Palms in peanut field. One makes short feeding flight to ground.

Then there is a flurry of activity. Perhaps provoked by small hawk passing by. Flying and chasing by both inds. At least one acceleration - soar on set wings. Lots of vocs, R's and "Auh" Notes (some loud, not really full screams).

Then the birds return to respective palms. One does PRG on landing. Possibly silent. The other just sits. Utters occasional R-Creaks and R-Flurs. Creaks and Flurs obviously just 2 different intensities of same pattern. Possibly R-Creak (Flur)'s are contact sounds as well as, or instead of, "song". I hear

Actually there are 3 Bluebellies here. Some mild chasing back and forth with low intensity "Auh"s and R's. Some gliding with set wings at end, not really rising to soar.

Then one mounting top palm. Upper bird makes some wing movements, probably for balancing. Whole thing probably "pseudo". Soft R during mount. "Chatter" of 3 short, soft "Auh"s — immediately after dismounting. No reversal. One ind flies off to another perch.

Coraci, Nov. 7, 1983, IV

078

Still occasional R's. 7:16. O photos. Some of these R's seem to be used as contact signals.

Rollers move away. Perhaps because there are at least 2 gray falcon-types around.

We are going back 7:25 a.m.

Guiguercher
November 8, 1983

Going back to same Bluebell area this morning. Arrive 6:37 a.m. Some fog. Relatively cool. No coraci audible.

Bluebellies do not "sing" at dawn.

6:50. See pair Bluebellies perched quietly top dead palm in middle distance.

First Roll call sounds.

One "Chatter" burst "Auh" Notes from tall leafy tree. Then one Bluebell lands silently top near dead palm. Then another Bird 10 ft away small bush. Silent. No trace of Greeting. Sit. Then starting feeding flights (pounces) 7:04. All quite silent.

Many feeding flights in next few mins.

One bird lands just beside another in small bare bush. Silent. No greeting. Newcomer stands in slight Agg V. Silent. Then utters 1 soft R.

Definitely 3 inds, 2 and 1, just as yesterday. Trio is stable.

More feeding flights. Apparently successful. All silent.

Ecologically, area looks good for Strick. Perhaps also for Sen. But no sign of either species. Because of Bluebellies?

Another example of silent joining. Then some R's neighborhood.

7:28. All 3 inds same bush. Some R's. Then quiet. O photos.

All 3 fly away silently. 2 land 10 ft apart, dead palm and nearby bush. One R. These birds always use same (4-5) perches.

These birds are only too placid today. We will move on 7:40

Coraci, Nov. 8, 1985, II

479

going back, see and hear fens same site where we recorded yesterday. Then see single Bluebell perched live palm. Quite silent. Peering. Back to end of other Bluebell group 8:08. Everything quiet. Walk around. Hear a few R's in distance.

Leaving 8:30

COMMENT: We are now into full dry season. I would have expected more invasions of other species. More Elyminians and more bee-eaters. I must check my records of '76-'77.

NOTE: The falcon that seemed to bother the Bluebells yesterday was the Gray Kestrel, Falco ardosiaceus.

This afternoon we are going to Katinong. Pass Bignona ca. 3:40 p.m. Weather is perfect. But birds are very discreet indeed. See 1 pair of Blackbills. Hear fens and Yellowbills. Arrive village ca. 5:20 p.m.

5:44. Brief burst of RR's from big tree above house

Katinong
November 9, 1985

There is a brief "immature" burst of Redbill "Whup" notes near house. Ca. 6:15 a.m. NOCA. Then miscellaneous DC without Coraci.

Start walking ca. 6:35 a.m. DC quite loud now.

One burst Purpur "clutter" in distance. NOCA stop.

Then Blackbills. NOCA. Stop.

6:48. See single Nannus perched 30 ft up bare branch of other-wise leafy tree. Flies off silently.

One Broadbill flutters silently.

See Nannus perched silently top Acacia. Broadbill, same ind. seen earlier. Flies off silently.

7:03. See what probably is another Nannus further on. Also flies off silently. These birds certainly are not "advertising".

Coraci, Nov. 9, 1985, II.

(480)

Burst burst of ~~that~~ song in distance NOCA. Stop.

Burst of few JER's. NOCA. Stop.

Miscellaneous Blackbill and Yellowbill sounds. Mostly NOCA.

7:14. Further on. See single Abyssinian perched high in leafy tree.

7:20. Family group of Purple flycatchers. One very roller-like "Anh" note in flight. Land in distant tree. Burst of "chattering" R's. Then shut up.

See Abyssinian (again)

Lots of bare soil. But no Blue belly.

Purple flycatcher. Lots of single "Anh" notes in flight.

7:30. First bursts of Streak Song Doublets in distance. O tries to record. NOCA. Stop.

Then see Sen songs a few minutes later (i.e. not an answer). One glances NOCA.

Minutes later, more Streak Song. NOCA. Stop. Immediately burst of few JER's. Stop.

Minutes later, 7:41, burst of few songs in distance. NOCA.

Minutes later yet, more Streak Doublets. NOCA.

Stralis and Sen are not interacting conspicuously here.

Wandering back 8:00 am. Some Purple sounds. A few Sen songs. Lots of Blackbill songs. All NOCA. But different Blackbills overlap one another, at random (?), quite frequently.

8:08. Single Abyssinian flies around with varied "Aaaaah" notes. Then over a dead tree, semi-mole hawk (probably hole-probing species) A variety of harsh sounds (no R's). O records. Hawk sits. Eventually flies off. Abyssinian sits. Eventually flies off with "Aaaaah" notes. Out of sight.

8:15. Burst of Streak Doublets in distance. NOCA. Stop. Immediately near flycatcher song. "I can't tell if this is" answer or not. More Sen songs in next few minutes. NOCA.

8:28. Further on. Lots of few songs. NOCA. Stop.

Coraci, Nov. 9, 1985, III

681

Then Blackbill songs. NOCA

Back to village 8:10 am. Less singing NOCA. This species certainly is dominant, in numbers (and conspicuousness) of birds, here now.

Start out again 9:45. Hear Mal songs from vegetation near village. NOCA. Stop. Then Blackbills from plateau. NOCA. Stop.

Much later, much further on. Hear 3 single Roller R's. These do sound like "broken up" "O" and "Notes" NOCA

Still later, hear burst of "chokes", doublets and triplets, from dense tree edge forest, sound like Mal. Habitat appropriate. NOCA

A few minutes later, several few songs from a partly adjacent area. NOCA. Apparently not an answer. 10:40 More few songs. 10:46. Also NOCA.

Redbill "Whup" Notes in distance. NOCA. Very soft. Stop shortly.

10:56 Walking back. A few roller sounds from top of ravages.

Back to village 11:15 am. Very hot indeed.

COMMENT. Thinking over some of the problems of Kingfishers and rollers. It is not just that their prey is large and therefore relatively scarce — in contrast with the small prey of bee-eaters, hoopoes and woodhoopoes. Herons, after all can be very gregarious indeed. The crucial factor may be the "necessity" of using perches. Perches may be a more limiting resource than food in parts of the tropics. We use dead trees and bushes. It cannot be entirely coincidental that the one Kingfisher that is known to be highly gregarious (at times) is the Pied. It is the species which can dispense with perches most easily or most frequently. It can hover instead.

I must think on the circumstances and habits of Laughing Kookaburras and the large Chloroceryle.

Ca. 3:00 pm. There is a great outburst of Blackbill songs near village. At least 3 or 4 pairs (or members of such pairs) involved. Outburst lasts for approx. 10 mins. This sounds like breeding season! But then everything goes quiet again.

Wind has come up. A little cooler now.

Coraci, Nov. 9, 1985, IV

(687)

Drove back to Ziguinchor in afternoon. Leaving 3:45 pm. Arriving 6:15 pm. Not too many birds visible in most areas. I did see 2 feral, quite close together. And we heard lots of Blackbill sounds in many different stretches of plateau habitats.

Ziguinchor,
November 10, 1985

Go to White Road, pause briefly crossroads. No coraci audible. Go on down a side road not used before.

Park car 6:44. Redbill audible in distance. NOCA. Stops.

This is plateau, quite open, scattered trees, a little fog.

More Redbill in distance. NOCA. Stops. Then Blackbill sings nearby. Top of remnant NOCA. Stops.

6:55. Hear long series single "Aaaaaarh" notes. Presumably Abyssinian. Once brief "chatter" 3-4 "Aaarh"s. Single notes briefly overlapped by Redbills and Purpurs in distance. Abyssinian is invisible but obviously in tall tree. This species is vocal (particularly aggressive?) and it does like tall perches.

Abyssinian continues until 7:03. Then stops.

Redbill sings. NOCA. Then Blackbill again. NOCA.

7:10. Hear long series of Striped Dendroto in distance. NOCA. Stops. This habitat looks ideal for the species. It may be only Kingfisher here.

Part of 4 Purpurs fly across road. Utter Chatter R in flight. Not "Aaarh"s.

Speak of the Devil! See starts to sing. 25 ft up large tree. Stops. All phrases NOCA.

Three Purpurs fly by silently. Two ind. have lost central tail feathers. Season of moult for the species.

Speak of the devil again! See single Blackbill perched top bare tree. Full plateau. Silent. Just sits as usual.

Actually, there are 2 Bluebellies in tree 15 ft apart. Ca. 30 ft up. They ignore Purple and Blackbill sounds.

Local Abyssinian is being very quiet now.

Bluebellies fly off silently.

I am going further down road 7:35. Go on through village to palm grove near rice fields.

Lots of Blackbill songs. NOCK. Several inds. involved.

Further down road, 2 Yellowbills fly by silently.

Then hear many more Blackbill sounds, a few Yellowbills. Largely or completely NOCK. More Blackbills. NOCK.

Going to turn around and start back road 8:05.

8:15. Past crossroads, on White Road itself. See pair Bluebellies in bare tree. Silent at first 15-18 ft up. 6 ft apart. Then one ind. utters 2 R's. Only slight traces (if any) of Terminal Creek. Then flies off silently.

Bluebellies get up into platanus more frequently than I expected.

Pairs do seem to be basic social units of the species.

Single Bluebelly remaining in tree utters "Chatter", "Ank ank ank ank" — — — when I approach and make noise. Then utters another 4-note "Chatter" as it changes perch 8:25.

Pass Bluebelly site highway. At least 1 ind. there.

Going back same areas in afternoon.

5:37. Bluebelly site by highway. Rollers apparently absent. But Gray Kestrel sitting on top dead palm! Makes feeding flight to ground. Then flies off. This species probably is a competitor of rollers.

A few yards further on, hear a few Bluebelly "Ank"s. See bird perched on frond live palm. Makes silent feeding flight. I see 2 other inds in nearby acacia. Sitting quietly close together.

Actually, there are 4 inds. here. More silent feeding flights. One ind. lands near "pair". No Greeting.

These feeding flights are to peanut fields.

Feeding is quite active now 5:50. All flights quite silent.

Coraci, Nov. 10, 1985, III.

684

Going on 5:55 pm. To White Road. Down side road. See 2 Bluebellies far apart, perched tops dead Oil Palms. One brief R.

Blackbill Whistles NOCA.

Bluebellies are not feeding for the moment here. Just looking at ground, moving heads from side to side.

Blackbill songs in distance. NOCA. Then more single Whistles NOCA.

There are lots of ~~serenades~~ ~~Coracids~~ ~~around~~ in all these plateau areas. Not associated with groups.

6:20. Going back White Road past crossroads. See group 14 Bluebellies perched quietly 15-20 ft up dead tree. 6"-6' apart. Relaxed. Some preening. 2 brief R's. Then silence.

Also 2 Blackbills in tree. One Blackbill supplanted by Bluebelly. Silently. Blackbill flies off silently.

See eighth Bluebelly on stump

Obviously gathering to roost communally!

Then all the Bluebellies fly off together. Utter "Auli" Notes in flight. Presumably going to leafy tree. O Records 6:35.

Almost immediately, 2 or more Abyssinians show up 100 m away. Lots of "Aaaaaaah" Notes. Arrive in leafy tree. Probably not the tree to which Bluebellies went. Presumably also gathering to roost.

Then all quiet.

6:47. Sudden outburst of Striped songs in neighborhood. NOCA. Leaving 6:55 pm.

Zuquidior
November 11, 1985

Back to same place again

Mal Song along highway

Arrive 6:40 am. Mal songs in distance. NOCA. Stop

No rollers visible or audible

Coraci, Nov. 11, 1985, II.

685

One roller R in distance 6:45. Then a few Blackbill Whistles. NOCA
2 Purple-crowned larks in tree. Not tree used by rollers yesterday. Silent but
and green. Then fly off silently.

Lots of Blackbill songs. NOCA

Suddenly 3 Blackbills and 2 Redbills arrive almost simultaneously
in "Bluebell" tree. A real morning assembly! Silent. Then both species
sing. Complete overlap. Then Redbills fly away silently. Blackbills remain
sing again. Another Blackbill arrives silently. Ophotes and records.

Hear Abyssinian noises in distance 7:10.

Apparently Bluebellies dispersed early and/or went in different direction.
The use of this tree by both rollers and hornbills is another indication
of the importance of

Blackbills fly off silently.

Single Abyssinian lands on bare branch of another tree 50 ft away.
Utters miscellaneous "Aaaaah" Notes. This species is talkative. Then just
sits quietly. Preen.

Does Abyssinian have distinct R pattern ??? I must check earlier
notes. This bird finally flies away with more harsh notes 7:18. Hear
more sounds of the species in neighborhood during next few minutes.
Apparently only a single individual around now.

Abyssinian reappears. Does high circular flight. Utters rather
short "Aaaaah" Notes. Often, not always, in doublets — Then
flies away into distance.

CORRECTION: This flying bird must have been a "second" ind.
There is an Abyssinian sitting quietly in same tree as before 7:25.

Abyssinian flies silently to another tree. Utters harsh notes.
Blackbill flies in. Supplants Abyssinian twice. Then chases Abyssinian in
air for several hundred feet. Abyssinian utters long "Aaaaah"s in flight.
Blackbill turns back. Lands silently. Abyssinian also lands silently in
yet another tree.

Heard Redbill begins to sing during this dispute. Ophotes. Redbill

Coraci, Nov. 11, 1985, III.

(686)

Songs completely overlapped by Blackbill songs in distance. Then both species stop. 7:33.

Abyssinian sits, looking from side to side, but no pounces. Flies away silently.

4 Purple fly by silently.

1 Mal song in distance. NOCA. More Blackbill songs. NOCA.

Going down another side road 7:48. Nothing of significance. Go back to streak area first road. 8:04. Burst Streak Doublets. NOCA. Stop. More Doublets. NOCA. Stop. Then see 3 Strals in usual tree. Not close together. More Doublets. These are accompanied by Flick-Spreads. No purring. Probably (?) no TV. Then everyone just sits. This group is stable.

The Strals ignore, and are ignored by, Drongo in same tree.

No sign of local den. 8:15.

0 photos and records.

Zugzwang,
November 12, 1985

Going back to same site this morning. Arrive 6:35. Still quite dark.

Almost immediately hear long stretch Streak Doublets. NOCA. Stop. Then another very long stretch of Streak song from another area. NOCA. Stop. The species is more abundant here than I thought. Is it coming into breeding condition?

8:52. Suddenly realize that there are 9 Bluebellies in small, partly leafy tree nearby. They must have arrived silently. 8 inds. are clustered close together on 4-5 branches apart. Quiet. The 9th ind. is a few feet away. Utters 2 R's. Sits. Two birds make silent feeding flights.

Both Blackbills and Redbills beginning to vocalize. NOCA.

6:58. 3 Bluebellies have drifted off. Silently. Pay no attention to Stralings which land same tree. Start calling yammering by.

Feeding flights are quite numerous now. All silent. One ind. does silent HF when another ind. lands beside it.

NOTE. This small tree was visited by Abyssinian yesterday. But there sign of Abyssinian here now.

7:05. There are Blackbills foraging in nearby trees. In full view of Bluebellies (and vice versa). No apparent interactions between the 2 species.

7:09. These Bluebellies have scattered silently. Now only 3 ind. left. Lilac suddenly appears. Hauling for insects. Silent. Passes approx. 100 ft from Bluebellies. No interaction. Lilac flies off.

Last Bluebellies leave 7:12.

Blackbills quiet now. Redbills singing distant. NOCA. Stop. Then Blackbills begin again. NOCA. Stop.

Saw Bluebellies back. Silent. Feeding (in sorgo field?). Silent. Fly away silently.

Now Blackbill and Redbill sounds. NOCA. Then some overlap.

7:23. See single Lilac perched exposed high in leafy tree. Silent. This tree was visited by Abyssinian yesterday. It was passed by Bluebellies on way to roost a couple of days ago. The 3 species are widely overlapping in space here. Lilac flies off silently. Back again. Sits as before. Then another Lilac flies by. Utters one harsh, buzzy, twanging "Aaarruh" note as it goes over car. Flies over to tree where first Lilac is still perched. Lands 20-30 ft away out of sight. No greeting.

This presumably is pair that I have seen along side path near carrefour on previous occasions.

Some more Striped song. NOCA. Stops.

Everything fairly quiet by 7:33.

Lilac flies off silently to another tree.

Bluebellies comes (back) to tree where group was gathered earlier. Silent. Then utters one Rattle-flur. Silent. Then one Rattle. Silent. Then I see another Bluebelly 200 ft away in another tree. Sitting quietly. Ignores Redbill uttering "Whups" (NOCA) a few yards away. Redbill

Coraci, Nov. 12, 1983, III.

688

stops. Bluebell utters 2 R's. Sits. Redbill begins again NOCA.
stops.

Then more Blackbill and Redbill forays in distance. Complete overlap
7:40. Group of 3 (4?) Blackbills fly into tree where Redbill and
Bluebell are perched. Begin full song display. No visible reaction by either
the Bluebell or the Redbill. But Redbill flies on a few minutes later.

Bluebell utters 1 R, partly overlapping Blackbill song.
Then Redbill song. NOCA. Perched on same branch as before earlier.
Bluebell ignores small squirrel in same tree.

Leaving 8:03 a.m.

NOTE: The carrefour here is called Diaguinon.

COMMENT: Are the Stricks, like the Blackbills, coming into
breeding condition now?

There do seem to be some changes in the course of the dry season.

Zuigundor,
November 13, 1983

Back to same place again. Arrive 6:40. Still not full light.
Nothing visible.

Brief burst Strick song. NOCA.

6:44. Group of 6 Corvinellas appears in bare tree favored by Bluebell.
Silent. Then fly off to the tree that the rollers used yesterday.

6:50. First Redbill sounds. Full song. NOCA.

Corvinellas gradually disperse.

Redbills very noisy this morning. All NOCA so far. Stop. Blackbills
begin NOCA.

7:08. Now short-tailed starlings are using roller trees. (This
is common. But starlings are usually reluctant to Coraci.)

A pair of Bearded Barbets, Lycopus dubius, are also using these
trees. Silent.

Coraci, Nov. 13, 1985, II.

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Purpur "chattering" R's in distance. NOCA. Stop

This is generally a quiet morning!

7:19 Brief burst of Blackbill song. NOCA. Stop.

"Hole probing hawk" appears. Pauses briefly. Flies on. Not molested by anything.

7:23. Brief burst of streak song. NOCA.

COMMENT: Why is this morning so dull? Even the hornbills keep moving. Perhaps the T^o is down.

Sun is coming through clouds 7:30

A pair of Swallow-tails appear in one of roller trees.

More streak song. NOCA.

Group 4 Purpurs appears. Noisy. Records should be good. Bolts "chatters" and a few single "Auh"s. All NOCA.

7:55. More streak songs. At least 2 inds. Phrases completely overlapping, but NOCA. Stop.

Go down side road. Nothing significant 8:10 a.m.

8:24. Boy marabout. Single Abyssinian flies high overhead with "Aaaaaauh" notes. Then see single Abyssinian perched quite high, 15 ft up in near small tree. Presumably, this bird was the object of the notes.

More streak songs. NOCA.

Going to Samatit this afternoon. Start ca. 3:50. Lots of Peds and 3 Abyssinians before Orrouge.

Reach one of my old sites, edge plateau and mangrove, hear Thal song. NOCA. Stop. Then Blackbill song. NOCA. Stop.

Then see one Bluebell and pair Yellowbills past Orrouge.

Arrive village 5:30 p.m. No coraci visible or audible.

Walk around village. Some series of Yellowbill "Pee" notes in distance. Not many. All NOCA.

ca. 10. Single Lilac flies high over village. Obviously, hawking for insects. Utters several single nasal harsh notes. "Khadaauh"s. There are still small swifts flying. Higher than Lilac. Lilac flies off without

Coraci, Nov. 13, 1985, III.

690

stepping or circling

No sounds of Kingfishers. But environment looks good for songs and/or strakes.

Quite a lot of Yellowbills around.

Stopping 6:30 p.m.

Samatits

November 14, 1985

Start work 6:28. Still darkish. Mal singing. Phrases after phrases. With Taylor's notes. Most phrases (otherwise) conventional. A few have added soft notes at end. This bird must be highly motivated. Coming into breeding condition?

At first Mal sings NCA. Then few songs. Not too close. Less uttered many fewer phrases than Mal. Some alterations. Mostly overlaps. "Semi-sander". But few birds to "come in" after Mal has started.

few stops. Mal continues for some minutes NCA again. Finally stops ca 6:38 a.m.

Towards end of session, Mal also utters a few short series "chak" notes. NCA.

Records songs (very well). Probably mixes "chak"s.

Move on. 6:50. Rather open palm grove. See single Mal on. Flies from perch to perch. All quite low. 8-10 ft up. Quite silent. Proportions look like Mal. One silent, obviously unsuccessful, feeding perch to ground. Also silent. Then flies off to crown higher palm. A few seconds later, hear short series (4?) of "chak" notes.

This species does use "chak"s for "proclamation". (Like White-throat?)

Then the Mal remains obstinately silent.

Starts brief burst full songs NCA. 7:08

7:15. Slightly further on, hear roller sounds. "Aaaaanh" Notes and R's. Aerial chase. One of the birds involved is Bluebell. This is region of scattered palms over rice fields. One Bluebell perched top dead palm.

Get better glimpse a few minutes later. Bluebell trio of usual 2-1 trio. A few creaky, shrill, buzzy notes. Low.

Mal Lungs in distance 7:35. Phras after phras. NOCA.

Is species coming into breeding condition here now? (As few go out?)

Burst of "Auh"s and "Chatters" from Bluebellies when hawk flies by. No attempt to pursue. Hawk flies on.

Bluebellies make occasional feeding flights. Silent as usual.

Some soft R's, Creaks, R-Flurs from tree to tree. Presumably the nearest thing to a song that the species possesses.

7:53. Further down road, another ridge. See single Bluebell perched 8 ft up edge field. Silent.

Mal Lungs phras after phras. NOCA. Stops.

Then 2 Purple fly overhead. Silent. Then a third. Also silent.

This ind. is carrying something in bill. Nesting?

Some Purple sounds later. NOCA.

Hear Bluebell Creaks in distance. NOCA.

Then Purple fly by with something in bill (again).

8:15. Plateau ridge. Alumnian perched low in Acacia. Silent. But I hear roller sounds in distance.

Large flock of Corvinellas around.

See pair Bluebellies perched together top dead palm. Quiet.

Also hear Struck song. NOCA.

Bluebellies fly off when palm tapper passes by. Hear R's and "Auh"s in distance. Not much. NOCA.

8:43. Crossing large plateau near Samatit. Lots of "Chunaco" type scrub. Single Halcyon leuccephala flies across road. (I think that I used to call this species "Gray head".) Lands 4 ft up in small tree. Lots. HB's. Apparently silent.

Coraci, Nov. 14, 1985, III.

(492)

NOTE. This area is at least several thousands m. away from nearest water.

Sen Song not far away. NOCA. No apparent reaction by Grayhead. Grayhead is tame. Just looking around. No sign of mate in neighborhood. Grayhead flies away silent when I approach within 12 ft. Going back to Zujuncho in mid-late-morning, we see only a few Red Kingfishers on wires.

Zujuncho,
November 15, 1985

Diphidular area this morning. Arrive 6:28. Still dark. Mal Song in distance. Phrase after phrase. All NOCA. Steps 6:36. Then burst of Sen Song nearby NOCA. Steps. More Sen. NOCA. Steps. Still more Sen 6:43. NOCA Steps.

Avoidance is still working here.

Mal usually the first to sing at dawn.

6:44. Mal Sing nearby. In mangroves close to tree from which Sen sang earlier. NOCA. About 4 phrases (first only 2 notes). NOCA. Steps.

6:49. Burst of Quail sounds in distance. In mangroves. Then Yelps. A few R's. NOCA. Stop. More Yelps a few minutes later. NOCA. Stop. Some Yellowbell "Pee" Notes 6:53. NOCA. Stop.

7:01 A few Blackbill Whistles. NOCA. Stop.

Pargues around. Some "Aah"s in flight. Then Chattering R's in distant palm grove. There probably is only one large group of the species in this. Their large range or territory.

Everything quiet 7:05. Day is very gray.

Then more Blackbill and Yellowbell sounds. Far apart. NOCA. Then Redbill in distance. Overlaps Blackbill.

Starting down side path 7:15

Coraci, Nov. 5, 1985, II

693

Blackbill songs. NOCA. Stop. More Blackbill songs. NOCA. Stop.
Species is becoming increasingly vocal here too.

7:28. Single Pied perched on one of the favorite fen bushes by channel.
Purpur chatters from time to time. Overlapping Blackbills at random.
Several Pids around. Fairly noisy. Twitters and Roullets.

Still gray and quite cool 7:37.

More Blackbill songs. Overlapped by Purpurs but otherwise NOCA.

7:50. See 2 *Alysiinians* perched 4 ft apart in distant Kad. Silent.
But I also hear 3 "Aaaaah" - Chatter (not R) series from some other bird
not far away.

Burst of fen R's. NOCA.

More Blackbills. NOCA. Stop.

8:03 ♂ Giant lands 3 ft up dead mangrove edge channel. Silent.
Has (fairly large) fish in bill. Has some trouble arranging it for swallowing.
Flies off silently. This bird must have been fishing in channel which also is
used by Pids and Leus.

8:06 Near burst Streak songs. Far away, perhaps in scrub across
rice field. NOCA. Stop.

Lots of Yellowbill sounds. NOCA.

Leave 8:30 am

NOTE: The Bluebellies do seem to have left this area. But they
certainly did so days and days before the *Alysiinians* arrived.

Zuquichor
November 16, 1985

Going to take road past dam and bridge (Pied Boulon). Arrive
Bluebell area 6:43. As far as I can tell, the *Hollers* have not arrived yet.
Birds on general quiet. It is relatively cool.

Not a sound of a kingfisher - or any other coraci.

Gray Kestrel birds top tree. Must be resident. And a competitor of the
Bluebellies.

First Blackbill sounds in distance. 6:55 NOCA. Stop.

Bluebellies definitely not here. We move on 7:13.

Find at least 2 Bluebellies in adjacent peanut field. One sitting on stump. One making feeding flights. Both quite silent. More feeding flights. Still silent. Another? 3rd? Lands in palm next to partner. Greeting. Brief "Chattering" R - Creak. Yes, definitely 3 inds. Presumably same group seen on previous day. I do some recording. Nothing much 7:25.

More Blackbill songs distance. NOCA.

Pair of Purple shows up. "Chattering" Records

Go on 7:37.

Bluebelly flies across road. Lands in tree. Several R's. R - Hurrs. There are, in fact, at least 3 inds. here. Possibly 4. 2 fly into same tree as first. Medley R's (with a few "Chatter"s?) and "Auh" or semi "Auh" notes. Then silence. Then several stereotyped "Auh" - R series. Then silence. 7:50. I get good recording. She says that there was brief chase at some point. This is about noisiest group we have found this year. As far as I could tell the reactions were all intraspecific. No bawls around.

Moving on 8:00 am

Stop by football field on way back. Kingfishers are silent. Go out in afternoon. White Road past Tolov. Arrive site of Blue bell group 5:30 pm. Very hot and arid.

Single Bluebelly sitting in one of usual semi-bare trees. Silent. Blackbill Whistles NOCA. Stop.

Bluebelly flies off silently 5:36. No! It has simply changed perch. 2 more come in silently. No Greeting. Fourth comes in silently. Flies away silently. Back silently.

5:45 2 Bluebellies disappear silently. Then Blackbill lands silently 2 ft away from remaining Bluebellies. No interaction. I.E. Bluebellies are not *Albigensis*.

1 Bluebelly disappears. 2 come in. Some R. NOCA. Some Purple "Chatter" in neighborhood. NOCA.

Corrain, Nov. 16, 1985, III.

(695)

5:54. Lots and lots of Blackbill songs. NOCA. Stop.

More Blackbill R's. NOCA. Stop.

More Blackbill songs. NOCA. Stop.

6:01. Now there are 4 Bluebellies around. All quite silent.
Some Redbill "Whup"s in distance. NOCA. Stop. Then Blackbill and Redbill alternate songs. Both NOCA. Stop.

Bluebellies quite ignore Psittaculus which land in same trees. 6:10 am.

Hear Mal songs in distance. Phrase after phrase. NOCA. Stop.

Aha! I saw that one Bluebelly displaced one Blackbill. Silently. Probably not really a hostile reaction.

Still only 4 Bluebellies 6:16. Is this family group? If so, where is the other family?

No sign of Lalae hawking yet.

Fifth Bluebelly shows up silently 6:18. Then sixth. Then seventh.

One Blackbill joins another. Silently. Approached bird does extreme semi-Agg V, one HP.

So group is forming.

One Bluebelly joins another. Greeting of R's. Third joins without greeting (but displaying pigeon). Then all 6 in same tree. More R's. Not very excited.

Then they start to fly off one by one. In same direction they went at same time a few days ago. 6:22. Some R's by remaining birds.

We pack up 6:35 pm.

Zuñiguel
November 17, 1985

Going to Maquis this morning. Arrive 6:30. Still dark. Some fog.

Mal songs immediately. NOCA. From same clump of mangos where same species seen in 176-177. Stop.

Then more Mal songs. 2-3 birds involved. Only a few hundred m.

Coraci, Nov. 14, 1985 II.

(676)

apart. Phrases of different birds overlapping at random. Most with single Intros. A few with multiple Intros. All NOCA.

This outbreak should be classified as at least 10 "performances".

One bird still singing at 6:46. Finally stops.

This habitat, with so many Mangos, seems to be ideal for Mal. More Mal song. NOCA. Stops. Starts again. NOCA. Stops. Starts again, different bird. NOCA. Stops.

Some "Chak" Notes. 6:53.

No sign of fens. Have they even "swamped" by Mals. Yet there seems to be quite a lot of typical fen habitat not far away.

More Mal song 6:56. NOCA. 2 birds. Overlapping stop.

Most songs seem to be given high in trees.

More "Chak" Notes. Single.

More Mal song. NOCA. Stops.

Everything quiet 7:00 a.m.

See single Mal top Baobab tree. Silent. Makes feeding flights. Silent. Apparently unsuccessful. Back silently. Fits. Pours.

6 or 7 more Mal song "performances" in distance. 7:00-7:16.

Walk only a few m. down road. Perfectly good fen-type habitat near old lake.

Local Zilox seems to have gone.

Weather is gray, cool, and bary. Birds quiet in general.

More single "Chak"s 7:42.

More Mal song 7:49. NOCA. Stop.

Single Mal flies silently across road.

End of just yard, visible thru haze 8:00 a.m.

More Mal song. NOCA. Stops. Again NOCA. Stop. Again NOCA. Stops.

2 "Chak" Notes, a doublet, from Mango.

Going on 8:15. The weather seems to have discouraged all activity.

COMMENT. I have been checking my notes. I did see, and more important, hear a single fen only a few m. from the site where the Mals

Coraci, Nov. 17, 1985, III

(697)

Sang today in afternoon of November 4th. So there is potential for contact between the 2 species here.

Going out along road to MPak (toward Guinea-Bissau). Weather is dreadful, but habitat is nice. Sort of "wet savanna"; doubtless artificial. Soil is white sand. Looks ideal for rollers.

See single Redbill high in bare tree. Sing NOCA. 5:20 pm. Overcast. Further on, hear 1 Sing Song, NOCA.

See single Bluebelly top dead palm. Hitters "croak". Then hear Bluebelly R. nearby.

More Redbill "Whup"s NOCA.

Yellowbill flies by silently.

Further on, see group 3 Bluebellies perched separately scrub field. See more Bluebellies still further on.

Guinea-Bissau,
November 18, 1985

Going to try road to Kolda past Niaguis. Go past Adventist Mission Park in plateau farming area. Still darkish. And cool.

No sounds of Coraci. Going on 6:30

Another area. Thinned vegetation, including palms, edge plateau and rice fields. Slightly bazy as well as cool.

Party of Purpura in palms. "Chatters" with some "fluting" notes. 1 Blackbill song in distance. NOCA.

A pair of kites and lots of crows around.

Hear a couple of Bluebelly type R's. Then several more.

Generally quiet and dull. Must be the weather.

Meditate of Bluebelly sounds from palms by rice field R's and "Auli"s (some quite loud and long). Some flying from tree to tree.

Also a party of Purpura. Very noisy in usual ways.

Exploring side path. Lots of Purpura and Longtailed Hornbills.

Coraci, Nov. 18, 1985, II

(6983)

7:37 Mal song. Phrase after phrase. From Mango. NOCA. Stop.
See 3 Bluebellies close together bare branches tall tree 4th ind. 10
ft away on frond of live Oil Palm. All silent. One ind. from bare branch
flies over, joins ind. in palm. No greeting.

A few minutes later there is a swell of sounds from Bluebellies. Some
flying around. Chasing hawk? (There is a hawk in area. Perhaps Melier-
da gabar.)

Starting back 8:05.

Zuignchor,
November 19, 1985

Going to try road to M Pak this morning. See song on road
Park side 6:30 am Still dark. See song (not same ind. heard earlier)
NOCA. Stops. Mal song. Short phrases. NOCA. Stops. See song NOCA. Stops.
Mal song. NOCA. Stops. Lots of single "Chak"s.

NOTE: This see and this Mal are close together

Mal song again. NOCA. Stops. More "Chak"s.

First Yellowbill "Pee" Notes 6:37. NOCA. Stop.

Another brief Mal song. NOCA. Stops. Then another Mal
song. Stops. More "Chak"s. Then another Mal performance. NOCA.
Phrase after phrase. Stops. More "Chak"s.

Going on 6:40

6:58 Much further along road. Hear Bluebelly sounds. "Auh"s,
R's, R-Creaks. One ind. in live palm. On record.

More Yellowbill "Pee"s. NOCA. Stop. Then Blackbill Whistles
NOCA. Completely overlap one brief Bluebelly R. Stop. More Yellowbill
and Blackbill in next few minutes. Some overlaps. Inds. are not close together.

4 Yellowbills fly overhead. From roost?

There seem to be at least 2 pairs of Bluebellies. Well adjusted.
No boundary disputes.

Coracii, Nov. 19, 1985, II.

(697)

O does lots of recording. Birds are quite vocal suddenly. Perhaps they are having a mild dispute. Some flying, some gliding with set wings.

COMMENT. It is now obvious that "Auh" and "R" are merely extremes of a continuum.

There have been some "Chatter"-like short series of "Auh"s.

Things are quieter 7:30.

Then Bluebellies start to fly around again. O records.

Wingbeats are quite noisy, close up, in flight.

One ind. utters series of short, R-like, "Auh" Notes as it suddenly flies up with beating wings after a long level flight. Rises 3-4 feet. Then glides down, set wings, silently for approximately same distance. Then flies on. Lands in palm.

O thinks that there are 8-10 birds around here. But not a friendly flock. Something almost like a "nesting colony". (In fact, a "natural situation"? Perhaps.

There are hawks around. O sees some traces mobbing by Bluebellies. Not very high intensity. The hawks probably are not dangerous to the Bluebellies. Only the Bluebellies are bad-tempered.

It is just conceivable that these birds are beginning to come into breeding condition.

Everything quiet again 7:45. Going further down road.

ADDITION. It probably is significant that we did not see or hear any Kingfishers in area where Bluebellies are abundant.

8:05. See single fern perched exposed palm frond over rice. Very calm. Does some preening and BW. (Note. This species does not HB frequently.)

There are Yellowbills in marshy trees. Active and very noisy. Song after song. Fern does not pay any attention.

Hear some Bluebellies sounds. Far away. Overlapped by Yellowbills. (Again) Fern pays no attention. O phytos.

Further on, hear more fern songs. 2 inds. NOCA. Then see Bluebelly in palm over rice. Utters several R-likes. O records. This Bluebelly is not

Coraci, Nov. 19, 1985 III

700

more than 200 m. from nearest den.

More far song. NOCA stops. Approx 3 mins later, Mal sings in distance. NOCA stops.

More Bluebelly R-flurs. NOCA. There is a pair here. O records.

More far song. NOCA stops. Again. NOCA stops.

Further on, hear Mal singing in distance. NOCA stops.

Single Bluebelly perched top dead palm. Utters several R's. O photos. Go on down to M Pak trail. Bluebellies all the way. Species very abundant here. Start back 9:15 a.m.

Back at the hotel, we replay the tapes of the recordings made this morning. There is one particularly interesting stretch. A nearby Bluebelly uttering R's, usually R-flurs. And a distant far singing. As far as I can tell, the far songs alternate, perfectly, with the Bluebelly vocalizations. The interspecific situation is remarkable indeed!

Zuñichor,
November 20, 1985

Road to M Pak again. Hear 2 different Mals singing on road. Both NOCA.

Arrive at site of Bluebelly "colony" observed yesterday, 6:35. Just getting light. Fairly quiet. One Mal singing in distance. NOCA stops. Some Blackbill Whistles in distance. NOCA.

Then Purpur "chatters" from distant palm grove.

No sign of Bluebellies yet 6:47. These birds are not early risers.

6:49. One brief Bluebelly R in distance.

Then single R nearby.

6:58. 4 Yellowbills fly into palms. 2 of them sing NOCA. Stop.

7:04. Suddenly see 2 Bluebellies perched bare branches top of leafy tree. Quiet. Preening. One flies away silently.

Blackbill Whistles distant. NOCA stop.

Coraci, Nov. 20, 1985 II

701

17:08. Burst of Bluebell sounds in neighborhood. Long fluctuating series of semi "Anh"s - semi-R's. Then some "Anh"-R sequences. Then silence. One ind. makes circular flight. With "Chatters". Each is "Anh-unh-unh-unh" — Last part is R like. Large part of flight is horizontal glide.

More R's. Birds are difficult to see in tops of palms.

It is obvious, however, that they are ignoring Yellowbills in area.

Then brief chase involving 3 Bluebellies. With vocs. All quite stylized. More "Anh-unh-unh-unh" type sounds. First note quite loud and urgent. Last notes R-like. One prolonged into full R.

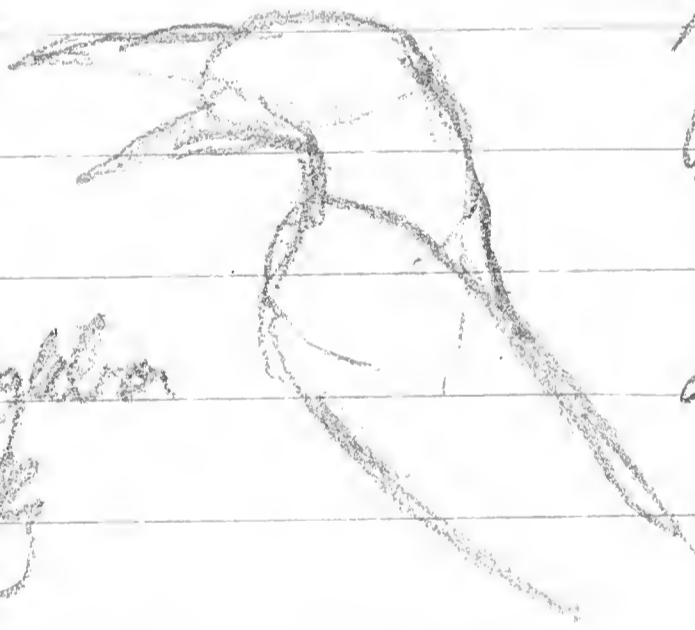
Obviously sequences and arrangements of the most "Anh" like and the most R-like sounds are significant in many (all?) vocalizations of the species.

17:20 There is a hawk around here. Utters loud melodious whistles. It is not mobbed by anything.

More Bluebell R's from time to time. One Rattle-flur.

As far as I can tell, there are only 3 Bluebellies here today. Quite dull.

Well! Well! 3 Yellowbills in palm. All close together. One in center, sitting in semi-bunched posture, turns to a neighbor and utters long series of short, rather hoarse notes. Bill wide open down movements. This looks in fact, like approached neighbor touches bill. Perhaps actually steps. Everyone sits quietly.



"Kaa kaa kaa kaa..."

Perhaps some slight up and down movement, like Begging. Does turn to face the Beggar. Makes food Begging.

Some more aerial chasing among Bluebellies 17:27. With more "Chatters" as before.

Then more continuous "Kaa kaa kaa..." Perhaps better transcribed as "Kaka kaka kaka..." from distant palms to which the Yellowbills have moved. One series includes first 2 and then 1 much longer notes similar to "Ka"s in pitch and timbre. But should be transcribed by something like "Kwaaaaaah".

Coraci, Nov. 20, 1985, III.

1702

Things are quiet 7:37

Walk down road. Bluebellies flying around in palms over scrub.
Usual medleys of hostile sounds.

Family of Yellowbills moving more or less parallel to me. Several more bursts of "Kaka kaka ka..." No long notes.

Back to car 8:00 a.m. Getting warmer now. Insects moving. Especially flies. There are at least 4 Bluebellies around. Making feeding flights from terrace mounds and low bushes. Area of low degraded scrub with many areas of bare sand. All feeding flights silent. When one bird joins another, there is greeting. Usually or always by joined rather than joined R's. Then joined stands & silent in Agg C. Gradually relaxes.

There is group 4-6 Purpurs very nearby. Feeding on ground. At first they are ignored by Bluebellies. Usually silent. Only occasional typical Purpur "Chatters", one with "fluting" notes. Then there are 2 supplanting attacks upon Purpurs by Bluebellies (same ind. I think) at a few minutes interval. Almost hostile. One with "Auh" by attacker. Apparently not redirected. Purpurs silent at time of attacks.

So relations between Bluebellies and Purpurs can be difficult. Does this help to explain similarities of sounds of the 2 species ???

Going back 8:20

Zuñiguelor,
November 21, 1985

Going to White Road past Tobor. See song on road. NOCA
Arrive Bluebellies site 6:40. Starting to get light. Streak songs
2 inds. Not overlapping. NOCA stop

First Blackbill Whistles 6:45 NOCA stop

Redbill songs 6:49. NOCA stop

More streak songs. NOCA stop. Then more Redbills. NOCA stop
More Blackbill. NOCA stop. Then more Redbill. NOCA stop

Coracu, Nov. 21, 1985 II

703

Two Purpurs fly by silently. Land in dead tree used by Bluebellies on previous days. Prem. One brief "Chatter". One flies off silently. The other prems. Then flies off silently. Flight is erratic. Flycatching? etc.

More Blackbill and Purpur sounds. Partly overlapping. Then more Blackbills. Several vids. Noca stop.

7:09. Streak suddenly appears dead tree. Silent. Then starts to sing. Long phrase. In upward-forward diagonal posture (like other Halcyon). As far as I can tell, no "real" BV. Certainly no tail or wing movements. Obscured by another bird. Complete overlap but otherwise Noca. Stop.

7:17. 8 Bluebellies fly into one of their usual trees. Silent. Complete morning assembly. One brief R. Then start silent feeding flights.

Redbill sings. Noca stop. Blackbill song. Noca stop. Then more alternations Noca.

Some Bluebellies move on. Silent.

Bluebill catches large grasshopper. Flies back to perch with prey in bill. Having trouble swallowing. Lots of mandibulation, no battering. (Battering may be absent in rollers.) Drops prey. Flies down after it. Apparently does not get it again. Flies back to perch. All this silent.

More feeding flights. No greetings when one rejoins others.

Obviously different groups of Bluebellies are in different "phases" of the annual cycle in different places now. The birds here certainly are not breeding.

Group of 8 Purpurs appears. Move about in Bluebellies' trees. 3 Bluebellies still present. Purpurs silent at first. Bluebellies do not react. Then suddenly one Bluebill flies to 2 Purpurs. Sort of "flutters" over them. Presumably hostile. But Bluebill is silent. Purpurs respond by chattering but do not retreat. Bluebill back to perch.

Lots of chaotic movements by Purpurs in next few minutes. At one point whole group lands in bare tree near, near at least 4 Bluebellies. Purpurs do lots of high interest, chattering and bowing. This time the Bluebellies do not seem to react. I record and photos. Purpurs fly off.

Coraci, Nov. 21, 1985, III.

704

COMMENT. This may be another example of a general rule. The smaller, weaker species "holds its own" during disputes because it is (usually) more numerous than its opponents.

Things generally quiet 7:40. Only occasional brief R's by Bluebellies. Then more Blackbill sounds. Lots of wds. All NOCA.

Go on to carrefour and then down side road.

Hear Abyssinian sounds. Broadbills not visible. Have they left area?

Streak songs in distance. NOCA. Stop.

More Blackbill Whistles. NOCA.

Leaving 8:10 am

Zimiquichor
November 22, 1985

Working along road Ororoy - Samatit this morning. Stop plat
can region 6:40 am. Getting light, some fog.

Immediately hear Streak Song. NOCA. Stop.

Go on further down road.

7:04. Edge mangrove and ricefield. See single Mal perched silently palm frond. Makes silent feeding flight. Probably to water. (Note this is near area where we saw and heard Mal the other day.)

Yellowbill sounds. NOCA. Stop. More NOCA. Stop.

Mal song in distance. NOCA.

7:25. Bluebelly, platian see single Lilac perched 15 ft up small tree. Pays no attention when single Sen lands a ft away in same tree. Both birds silent. Sen flies off. Lilac looking side to side (for insects).

Yellowbills singing nearby. NOCA. Stop.

Sun coming out 7:32.

Blackbill songs in distance. NOCA.

See 2 Bluebellies perched quietly 6 ft up edge platian and rice. One R. Just sit. No feeding.

Lilac still sitting as before. 7:45

Further on, 2 more Bluebellies sitting quietly in palm over plateau scrub.

Still further on, see another Lilac in palm over crop field (beans?).

Utters "Aaaaanh" type notes. Very buzzy, nasal, twanging. Some single long notes: "Aaaaanh". Some "doublets", long-short: "Aaaaanh-
anh" ——— Is this equivalent of Rattle-Flur of Bluebelly? A sort of long "Oooooo".

Grant Kingfisher flies by silently.

Suddenly, out of the blue, the Lilac starts to vocalize again. Complex series. Single "Aaaaanh" notes, followed immediately by brief "Chattering Rattle". These last are fairly hard, not twanging. In one case, really R. I don't think that we got this on tape. Then the bird goes back to simpler "Aaaaanh" patterns. Singlets, doublets, a few triplets. Then starts to fly from tree to tree. Utters some 4 (or even 5) note series in flight. All are "Aaaaanh"s, but some are loud and urgent, almost semi-screams. We do record these.

Then bird sits quietly again.

8:30. Lilac starts to sing in Mango tree not far away. NOCA. Stops. A few more "Aaaaanh"s in Lilac. NOCA Stop.

Further on, another pair of Blue Bellies in acacia on plateau. Utters: Rattle-Flur.

Lots of Blackbill songs in distance. NOCA

Further on see Abyssinian. Flying high. Utters a few "Aaaaanh" notes as it flies over Bluebelly perched dead tree. Bluebelly does not react.

Hear ten songs in distance. NOCA Stop. (This cannot be far from where Graybird was seen a few days ago.)

Flock of Long-tailed Glam Starlings flies into Bluebelly tree. Very active and noisy. Only inches from roller Bluebelly, pays no attention. Bluebellies do ignore starlings. Peculiar, as starlings look so much like Purpurs.

Redbills singing in distance. NOCA Stop. Then Blackbills begin NOCA

9:00 Further on Mangot and mangroves. Mal songs. NOCA. Stop
Then see song far away. NOCA. Stops

On to "Graybeal area" 9:15. Nothing visible. Turning around.
See song in Alacia not far away. Sitting quietly. Then utters long series
"pure", non-fluctuating R. To us? Flies away. Followed by another.
2 separate Mal song performances on road back to Onorize.

Go to Cap. La Poullette. Then on to, and past, Kabrouse. Start 5:15.
Stop 5:31. Rice fields with Kade distant plateau. Hear streak song in
distance. 1 ind. NOCA. Stops.

Further on, see single Abyssinian top dead tree. Makes feeding flights
Silent throughout

Going back, see several more single Abyssinians. Perched low over rice

Cap Kabrouse,
November 23, 1985

Going to rice fields beyond Calbrouse. Arrive 6:37. Getting
light. No fog.

Almost immediately, hear streak song. NOCA. Stop. Starts
again. NOCA. Stops. Starts again. NOCA. Stops.

Then one roller bark note (somewhat).

Redbills begin 6:42. Lots of individuals. Far away.
More streak song 2 inds. Overlapping one another. Also overlapped
by distant Redbills.

6:50 More streak song. One ind. NOCA. Stops. This individual
seems rather highly motivated.

Then Redbills. Stop. Blackbill begins NOCA. Then Redbill starts
again. Many partial overlaps. Then stop.

Go further along road. 6:54. Streak song. NOCA. Stops.
Then more streak song. 2 inds. Completely overlapping but NOCA. O
records. Then song stop.

Coraci, Nov. 23, 1981, II

170p

Note. All these songs seem to be coming from distant stretches of woods (plantation?) across rice fields. Streaks seem to be thick on the ground here.

Then more streak song. NOCA. Stop.

Why are dens absent (or silent)?

Go on further down road. Everything quiet.

Then Blackbill Song in distance. NOCA. Stop. Start again. NOCA. Stop.

Still another area 17:22. Still another streak song. NOCA. Stop.

A few roller sounds in distance. But Abyssinians certainly have not become active early.

Redbill Song 17:27. NOCA. Stop.

17:30. Further on. See single Abyssinian perched 4 ft up top bush. (Inds. of the species tend to be low here) silent. Just looking around.

Go on to mangos and turn around.

17:44. More streak song. NOCA. Stop.

Another streak song. NOCA. Stop.

Abyssinian still supreme bush.

17:58. More streak song. NOCA. Stop. Then 2 more performances.

All NOCA.

Some Abyssinian "Agagaarh"s in distance. NOCA. Stop.

Further on 8:06, more streak song. NOCA. Stop. Then again, the ind. perched this time NOCA. Stop. Still another performance. NOCA. Stop. Still another. NOCA. Stop. Still another. NOCA. Stop. Still another. NOCA. Stop. Then 2 birds singing. Overlapping stop.

Approaching Calrouse. 1 Mal Song. NOCA. Stop.

Back to hotel 8:35.

Nothing much to be seen along highway on return to Guigui.

11:15 am - 12:30 pm

Guigui
November 24, 1983

Coraci, Nov. 24, 1985, II

1708

Going to Mangos to try to record Mal songs. Arrive 6:30
Mal songs immediately 2 inds, not close together.
Then a 3rd. First phrases are short. Become longer.
Considerable variation. Records.

Phrases of different ends, overlapping, but otherwise NOCA.
Count this as at least 10 performances.

Brief lull in Mal songs. I immediately made few reports
a pure R phrase NOCA stops. Mals resume singing again. 3
performances. Stop.

Then R's. Is this really Sen? Particularly loud and
metallic. Then more R's. NOCA. Bird is flying from tree to
tree, including Mangos.

Mals have shut up temporarily. 6:42 a.m.

Then more Mal songs in distance, across road. NOCA stops.
All quiet again.

NOTE: The bird that uttered R's flew away, apparently far
away, immediately afterwards. "Swamped" by Mals? I got good record-
ing of sound so I will be able to check it later.

Everything still very quiet 7:00

Leaving 7:15. Go on to old pond area. Nothing.

On way back 7:33. See 3 Bluebellies (2+1) perched over
edge rice field. Silent. Fly off to Kads across road.

COMMENT: This is the densest "cluster" of Mals that I can remember.
At least 4 inds sang. Probably 5 in fact. My number for performances
is probably correct. Underestimated if anything.

It was interesting that the Mals did not use "Chale" notes during
this fairly high intensity outburst. Also that there was no aerial display.

Equally interesting that Sen did not sing.

Come to think of it... I have not heard the Sens in the town of
Ziguinchor for some weeks now.

Guiguer
November 23, 1985

Going to try road to and past Boulton this morning. Reach area of football field (I think) ca: 31. Quite a lot of fog.

Wear "chak" notes immediately. Then Mal song. Then more "chak" notes. Overlapping song, but obviously 2 inds involved.

Then Mal song. Nock stops. Then Sen sings. Nock stops. Mals sing. At least 2 inds. Complete overlapping. But other wise Nock stops. Then Sen sings. Nock stops. More Mal songs. Nock. Then at least 3 more song performances by Sen and 3 more by Mal. All 6 performances Nock.

Heard 2 birds give more short bursts of "chaks". This ind does seem to be using "chaks" instead of song. Why?

Sen sings again. Then Mal starts to sing several short phrases: Wttr - 1 Whistle. Partial overlap with Sen. But then Sen shuts up. Mal sings series of long, complete phrases. Nock stops. Then more "chaks". Nock.

Several (2) more Mal song performances. Nock stops.

Everything quiet temporarily ca: 45. Just as it is finally getting lighter enough to see. But fog is still thick.

COMMENT: Even though there was one partial overlap of Sen and Mal this dawn, the 2 species did manage to avoid most interference almost all the time. (Very different from previous occasion.)

Note: Mals are thick on the ground here too.

First Yellowbill "Pee" Notes. Nock stops.

Then a burst of Purple "Chatter". Both harsh and fluting notes.

Then Redbill in distance. Nock stops.

This particular area is essentially plateau. It is interesting that I have not (yet) heard streak.

Coraci, Nov. 25, 1984, II.

(710)

Note: There are quite a lot of Thargus here. Helps to explain the density of Mals.

One burst of "chaks" 3-note 7:22. NOCA.

One of Blackbill sang in distance. NOCA stops.

Sun is beginning to come through 7:30. But it is still very misty.

7:40. Yellowbill suddenly utters excited "Pee" notes when Maltate glides closely. NOCA stops. Immediately nearby Blackbill bursts into full song. NOCA stops. Was this a response of Blackbill to Yellowbill?

A few minutes later, see single Yellowbill being mobbed by 2 drongos. Has to take evasive action, but it does not utter a sound.

7:46. Nearby Mal starts short song. Peculiar. Intro-Intro-Intro-Intro-Intro etc. Followed by long series of Intro-1 Whistle "Doublets". This is approximately where I heard "Chak"s earlier. The local bird seems to have a distinctive myotis wided.

In next few minutes hear about 5 Mal song performances. All "normal". All NOCA. No sound from Sen.

Everything seems to confirm that the different Halcyon kingfishers are out of phase with one another.

Then Mal song. NOCA stops. Another Mal sings. NOCA stops. Starts again. NOCA stops. Then 2 birds sing simultaneously.

It is quite ripeable to see the performers here now. Leaving 8:00 am.

Mal singing as I leave.

ADDITION. If there was a song duel between Sen and Mal, then the Mal "won".

Zigunacher,
November 26, 1985

Going out to Falmere and Bignona mid-late morning.
Nothing of significance.

Coroico

Zuñigador,
November 27, 1988

Going to White Rock past Tabor. Hear Struck Song along road. NOCA
 Arrive camp four 6:40 Still not quite light.
 Hear 2 Struck Song performances almost immediately NOCA
 Stop. These birds probably are coming into breeding condition.
 Redbill Song 6:51. NOCA. Stop. Again. NOCA Stop
 Going to walk down usual side path.
 More Redbill Song. Also some Purple "Chatters". Partly overlaps
 purple. Then see Purple. Perched 30 ft up dead tree. Apparently alone. Lots
 lots lots BW. Vocalizes occasionally. Single "Auh" Notes and "Chatters".
 The latter obviously are accelerated series of "Auh"s. One BW during
 one "Chatter". Bird finally flies off to join another 300 m away.
 Burst of quieting "Chatters".

It is cold this morning. But no fog here.
 Blackbill Song in distance 7:06. NOCA.
 Reach "usual" Struck area. See single ind perched quietly up.
 Then hear Struck Song in distance. NOCA. Stops. Then hear Struck Song
 nearby. NOCA Stops. The bird perched in bush flies off silently when we
 pass close by.

More Blackbill. NOCA Stops. More Redbill. NOCA Stops. Then more
 Blackbill. NOCA Stops. More Redbill. Stops. More Blackbill. Stops. Note:
 these singers are far apart from one another.

9:17. Everything quiet. Going further down road.
 Group of Long-Crested Helmeted Thrushes (*Prionoxystus plumbeus*)
 appears. No one pays any attention to them.
 Struck Song in distance. NOCA. Stops.
 Blackbill in distance. NOCA Stops.
 More Struck Song in distance. NOCA Stops. Again. NOCA Stops.
 COMMENT: the songs of this species always seem to me to be partly.

Comrie, Nov. 27, 1985, II

712

"ventriloquial." It is difficult to tell how far they carry

17:31. More Streak song in distance. NOCA stops. Again
Lots more Blackbill notes. NOCA stop.
More Streak songs. 2 inds, far apart from one another. Overlapping. But
NOCA stop. Then start again as before. Apparently same 2 inds. NOCA stop.

What has happened to Jers here?

More Streak songs. 2 inds. Overlapping. NOCA stop.

This is reminiscent of Calrouse!

17:58. More Streak song. Far away. NOCA stops. Then 2 inds. song
nearly overlapping. NOCA stops.

See Streak sitting 4 ft up. Makes silent feeding flight. Disappears.
A few mins later, there is outburst of streak songs. At least 2 inds.
Then see 2 inds. 4 ft up, 1 ft apart. Silent. Some HB's. 1 U-DTF.
One makes silent feeding flight.

Outburst of Streak songs far away. 2 inds. NOCA stop.
Going back up road, hear Streak songs hybrid me. Two performances.
Then a third. Then a fourth. Then a fifth. Sixth (2 inds.).

There must be at least 3 pairs (or groups) in this limited area.
Has there been an in-migration? I think so. Very first notes
here. I should have noticed more than one group had so many inds.
been present at the time.

More Blackbill songs. NOCA stop. Redbill songs. NOCA stop.
Then Blackbills and Redbills alternate several more times. No
overlaps between species.

Back to carrefour 8:25. Getting ready to leave.

COMMENT. It would appear that Streak territories are relatively
small here — even smaller than Sen (or Mal) territories. But it also is
conceivable that all the inds. here are "members", in a sense, of a single social
"group". I wish that they were more often visible!

Zunguichor,
November 28, 1983

Going to Djibouba this morning. Arrive 6:28 a.m. Everything dark and quiet. No DC yet.

First Sen songs 6:43. From usual clump of trees by road. 4-5 phrases in row. One performance. NOCA stop.

6:44. Outburst Sen R's NOCA stop.

6:46 One abbreviated Mal song in distance. NOCA stop.

No one seems to be very motivated this morning.

6:47. First Blackbill song in distance. NOCA stop.

Single Filac flies overhead. Silent.

Purpur "Chatter" 6:56.

Everything (still) very quiet. Going down usual side path 7:04.

The day is cloudy but not cold.

Some Yellowbills and Blackbills 7:09. Mostly NOCA, but also some overlaps 7:09. Yellowbills sound fairly excited. Blackbills no.

Purpur on dead palm trunk. Silent and apparently alone.

Red Kingfishers along creek. Quiet.

7:23. Come across Purpur again. Still silent and alone. Flies off silently to distant grove.

See Abyssinian in same Kad where species was seen on last visit. Makes feeding flight to ground with "Aaaaah" Notes.

Blackbills and Yellowbills continue to vocalize, off and on, as before. Redbill starts to sing 8:04. Some NOCA but mostly overlapped by Yellowbills.

Leaving 8:15 a.m.

Zunguichor,
November 27, 1983

Going to explore road to MPole. Not far. Arrive area of mixed

Coraci, Nov 29, 1923, F.

1714

vegetation, gardens etc. 6:33 Still quite dark.

Almost immediately hear burst of what may be Mal "Chak" Notes
Mal songs 6:41. NOCA. Stop.

Then everything quiet. Very little DC. Mostly Cabbles.

Purpure "Chatter" in distance 6:52. Stops.

Single Bluebell R. NOCA.

Redbill "Whup" in distance 6:58. NOCA. Stop.

Everything still very quiet 7:17. This is the height of non-breeding!

Group of Purpure in palm grove. Behaving as usual.

Leaving 8:00 a.m.

Coraci

November 30, 1985
Ziguinchor

Going to Koulla and Jambacounda today. Start 7:30 a.m.
We do not stop very much on the way; but we did notice a few things. None of them surprising.

Bluebills are the most abundant rollers near Ziguinchor. Abyssinians are dominant from Koulla east. Solitary or, family, in pairs. Not in groups.

Redbills are the dominant hornbills near Jambacounda.

Ca 11:30 a.m., we heard Streak song from plateau scrub just past Koulla.

No trace of Gray-headed Kingfishers.

Jambacounda,
December 1, 1985

Going to work along road to Mokola-Kobagank

6:25. Plateau scrub with scattered trees. Hear repeated Streak songs. Probably 2 birds. Little or no overlap. Stop.

Then Redbills sing in distance. Noca. Then more Streak song. Completely overlapped by Redbill.

Go on further down road. DC is only moderate.

6:48. Area with rather more trees. Both Redbills and Blackbills sing. May overlaps. As far as I can tell, overlaps are "random".
0 records.

Lots of Pargues around. Hear. Beware.

7:07. A few Abyssinian "Aadgaars" in distance. Noca.

7:20. See single Lilac perched silently top bare tree.

Further on, see single Abyssinian perched quietly. Ignore. Redbills not far away. Makes silent feeding flight.

Corvallis, Dec. 1, 1985, II

716

See lots more birds going down road. Several Abyssinians. Apparently single. Many many Redbills. Apparently in pairs. Also Blackbills. Also apparently in pairs.

One burst of streak song. Completely overlapped by Blackbills.

9:43 Approaching park itself. See group 10-15 caracaras in small bare tree in region wooded grassland.

10:28 Edge park. I see aerial chasing of one Abyssinian Gnatcatcher. Probably noise, but very brief.

See one Abyssinian perched high tree. Silent. Another Abyssinian flies in, lands 10-12 ft away. This one silent. Joined bird utters short series "Aa-a-a-a", plus one short harsh note. I records. Both birds sit. Then both fly off same direction. Swift looks like pursuit. But silent. Are these birds mates.

There were Purple Martins nearby tree. Ignore and are ignored by the rollers. Go on and on and on. Finally reach campment 1:00 pm. See lots of birds on the way. Nothing very exciting. Still I can add something to the above.

Redbills sometimes are in trees. Presumably family groups. There also are wasps (Vespidae) feeding on and by dirt road. In usual manner. Apparently always alone. There also are several Coucals and Long tailed Gnatcatchers. But no sign of M. Bour type mixed flocks (Which may go to show how important the restricted space available at M. Bour may be).

Abyssinians are really abundant. With one possible exception (above) all birds appear to be single. Doubtless appearance is misleading. It is only that males feed separately.

No trace of Bluebills or Naevius. (What in the world is the real "mike" of Naevius??)

Streak seems to be the only kingfisher. And not very numerous. Wasps are always alone.

Purple are abundant everywhere. The species I saw is the one I

Coroico, Dec. 1, 1985, III

717

variety of environments. No trace of any other species of wood hoop.

Redbills are superabundant. But Blackbills also are common. These two species seem to be almost completely compatible.

No trace of either Yellowbills or Forkedbills.

General conclusion. Although parts of the park are relatively dense forest, the region is less humid than the Barro Colorado.

Going back to Tamboraunda in late afternoon we see more of the same. Not very interesting.

Tamboraunda,
December 2, 1985.

Start out road to Kaolack 7:00 am.

Redbills and Abyssinians along road.

7:40. Mixed plateau vegetation with trees. Hear Abyssinian sounds. Harsh but slightly varied. Probably 2 pairs. Males not close together.

One ind. is having great difficulty coping with large hard prey. Almost certainly a large beetle. Does lots of battering in best Kingfisher style. Silently.

Redbill sounds are nearly continuous.

Struck sings. Completely overlapped by Redbills.

Male lands 4-5 ft from battering Abyssinian. Silent. No trace of greeting. No attempt to take food.

Now Abyssinians in distance. Utter both long "Aaaaarrrh"s and "chatters" of shorter notes. Records.

Struck continues to sing from time to time. Sometimes overlapped by Abyssinian and/or Redbills.

Abyssinians here are not only dense, but also more frequently vocal than the birds we saw in the Casamance.

8:25. Further on. Another burst of Abyssinian sounds. Probably a mixture of territorial disputing and attacks upon 2 small

Coraci, Dec. 2, 1983, II.

718

hauled. Records at length.

There is a flock of at least 13 Senegal Coucals around!

10:00 a.m. Wooded savanna area. See 2 Ground Hornbills perched 10-15 ft up bare tree. Very close together. *Allopecurus*? Both seem to have blue faces, but light is poor. They fly off to several other trees.

Finally far away. Apparently silent throughout.

Go on all the way, arriving at M. Bower (old house!) 4:00 p.m.

NOTE and COMMENT. Between Fambacounda and Kafferine, a distance of approximately 200 km., we saw hundreds (200+) dead Abyssinians on or beside the road, obviously hit by cars. A couple of hornbills, a few passerines and nothing else.

Apparently the Abyssinians come down to the road to feed. Presumably to get (usually insect) carrion. Actually, land, stand.

This is something that *Bluebellies* never do. Although their picking along beaches, strands (viz Cap Skirring in 1976) may be roughly equivalent.

The carrion feeding by Abyssinians - like their pursuit of insects escaping from fires - is specialized, perhaps unique, among rollers.

I can certainly see why Abyssinians are vulnerable to cars. They are bold. They sit and look at a car boldly, only to fly off, often in the wrong direction, at the last moment. This probably goes to show how "predator-proof" the species is under natural conditions.

Obviously, the population is greatly affected by (modern) human activities. Not only do cars kill hundreds and thousands of rollers, but the carrion provided by cars (and the fires lit by the local Fulani) must also provide nourishment for hundreds and thousands.

ADDITION. There were lots of Redbill songs at M. Bower ca 6:00 p.m.

M. Bower
December 3, 1983.

Coraci, Dec. 3, 1985, I

719

In and out Dakar - M Bour today 7:00 am - 3:15 pm.
Nothing of significance.

Unless the nothing is significant in itself. We did not see any Abyssinians on or by the road. There are suitable perches available - Wires, if nothing else. Nor did we see any Abyssinians between Kaolack and M Bour yesterday afternoon. Perhaps the whole Petite Cote - Cap Vert is too dry even for Abyssinians now?

4:45 pm. Back at M Bour. Single Lilac hawks for insects overhead, near beach.

Ca. 5:20 Hear a few, flat, not very high intensity "Aaaaa" Notes from Lilac in nearby Baobab. NOCA. Stop.

Redbills sing from time to time. NOCA

6:15 pm. Single Lilac hawking for insects

Stay watching until after sunset. Certainly no great concentration of Lilacs here now.

M Bour
December 4, 1985

Going to walk in park of ORSTOM station

Nothing in the way of early light before light. First Redbill sounds in distance 6:55. I finally start out 6:58. Still not full light.

7:04 Single Lilac flies into Casuarina sits silently. Flies off silently. Probably hunting already, even though T° is cool.

There seem to be lots of catcalls around.

Pair of Redbills apparently catching insects in trees. Some "Whup" Notes. Then fly off silently.

Actually, Redbill sounds are much continuous, at least until 7:30 including fall songs. NOCA species is still abundant around here.

7:30. Group of at least 6 Redbills in acacia. Silent. Group forming? But then 4 fly off. Others do not follow.

Coraci, Dec. 4, 1985, II

720

Hear a couple of Zelae "doublets" in neighborhood. NOCA
There are quite a lot of swifts and swallows flying high. One of the
species seems to be Hirundo senegalensis.

7:59. See a Barbarian Thrush, Tamias barbatulus.

8:06. See single Zelae perched exposed in bare acacia. Silent.

8:20. Back to acacia where Zelae is still sitting exposed. This bird
is largely gray underneath. Also has black tip to bill. It juveniles. Just
sitting, looking around. Ignored group of swallows flying in and out.
Then flies off. And I hear typical Zelae notes in neighborhood.

8:28. See single European Bee-eater, Merops apiaster, perched
exposed. Flies off silently.

See apiaster, probably same bird, further sitting quietly. Looking.
Barbarian Thrushes are abundant here. But I have not seen Cornucopia.
Back to house 8:30.

COMMENT. The area now. Good for aerial insect eaters. Good
for (some) shrikes. Good for hornbills. Not good for Blackbills. Not good
for pouncers, i.e. Coracias and Halcyon spp. Why are the pouncers at a
disadvantage? Probably because of the nature of the vegetation. The area
is very dry now. (Even the garden areas are being watered less frequently
and extensively now than in 1944). The scrub is poor. But the ground,
except for paths, is covered by dense grass.

In afternoon, go on to Domaine de Marving (Tourist complex). 5:30
pm. Small pond. Herons and cormorants. B (Baillon) says that he has seen
3 species of kingfishers here: Pied, Leuc, and picta.

In effect, a single Pied kingfisher. Silently.

There are even an Ibis, an Ardeotis, and an Oxyechus here! This must be
one of the few standing bodies of water in the region. Only a few hundred m.
in length.

6:03. See single Leuc. Silent and alone. Flies off silently.

Pied kingfisher, silently (again).

One Pied is perched quietly among noise, cattle Egrets. Presumably it is

Coracia, Dec. 4, 1985, III.

(721)

The fact that Pied can find and use such a small and isolated pond is (another) indication that the species is highly opportunistic.

6:23 Pied is feeding now. Apparently successfully.

Single Lilac flies overhead silently.

6:43. Single Sen puffers nearby. Apparently just Dull birds.

M Bower
December 5, 1985

Oversleep this morning. Wake up at 7:00 am. Not much DC by house. But Redbills are already singing. NOCA.

Redbills continue to sing off and on, with diminishing frequency, until past mid-day. Only a few songs in afternoon. All NOCA. Single Lilac hawking for insects as usual 6:00 pm. Silent.

NOTE. I have extracted p 722 (Coracias caudata)

Coraci

(a)

Jambacounda,
October 16, 1991

Drove down from Dakar yesterday. Road is dreadful. Did not have a chance to look especially for birds, but I did catch glimpses of Redbills, Blackbills, Abyssinians and Broadbilled Rollers. There is a resident Sen in garden of hotel here. Began singing early this morning, ca 6:30. Then off and on through first half of morning. All "real" songs classical Intro-R. Bill raised slightly. Usually given while perched high (eupoles) and exposed.

This bird usually appears to be alone. But I heard one burst of "growling" or fluctuating R's (out of sight), no Intros. Presumably high intensity hostile encounter.

Going out for a short drive in late afternoon

4:55 pm. Single Abyssinian flying from bush to bush in "forested savannah" Silent and relaxed.

Another Abyssinian further on. Still a third several hundred m. away.

5:00 Still another single Abyssinian. Another.

Several single Redbills fly by.

NOTE: According to D, the month of October is the tail end of the rainy season. Only occasional rains.

5:47 pm. No sign of Broadbills yet.

Stopping observations 6:20

Back at hotel. Ca. 6:45 pm. Whole outburst of R's in small trees of garden. More or less Sen-like. No Intros. No fluctuations. All straight and simple. Stop. A few more bursts of more straight R's. Then some fluctuating R's at intervals. Obviously mates and/or neighbors having some trouble settling down for the night.

Coraci

(2)

Zuñunchoz,
October 8, 1991

Drove here from Tamba yesterday. Accidented trip. Nothing of interest seen.

Woke up today to pouring rain. Some few sounds heard in distance ca. 7:30 a.m.

Go out in evening ca. 6:00-6:30 p.m. Very light sprinkles of rain. No coraciiforms visible or audible.

Zuñunchoz,
October 9, 1991

Just starting to get light 6:30 a.m.

Walk around little park without seeing or hearing anything of interest. (Perhaps birds tend to avoid area because herons, storks, etc. are so noisy?)

7:04. Single ♂ Bird perched on pole in river. Then flies up, starts to fish along shore.

Zuñunchoz,
October 11, 1991

A few typical Sen songs near hotel both this morning and yesterday morning.

Drove to Bagnova and Lurdian. Everything very quiet. Apparently this is "non-active" season for coraciiforms. But we do see some Blue-bellies. In ones and twos.

12:22 Hear Purple "chatter" near Juli's house. NOCA

A few minutes later, hear song of Striped Kingfisher. NOCA

Then hear Roller hoarse notes in distance. Blue bell or Broadbill. Just one burst. NOCA

Coraci

(C)

12:36. Another burst of Purple Chatter.

2:50. Lots of Purple Chattering in distance.

Ca. 5:45 pm. Driving from Sédou to Bignona. Region relatively dry and high. Mixed vegetation. Quite a lot of trees. See naevia perched top dead tree. Silent. Apparently alone.

Some single Redbills and a pair of Yellowbills fly across road before sunset. Obviously going to roost.

ADDITION: Just after leaving Sédou, we saw a single Kingfisher 15 ft up in tree. Flew off from tree to tree. Quite silent. (But)

Ziguinchor
October 13, 1991

Going to Niaguis this morning.

See songs along road as soon as it starts to get light. NOCA arrive 6:55 am. "Full" light but very cloudy.

Former pond quite overgrown now.

Yellowbill perching top dead tree. Silent and apparently alone.

Single Broadbill flies overhead. Then another a few mins. later. Both birds silent.

No Kingfisher songs here now. All birds generally quiet. Nothing like real D.C.

7:23. (Small) hear Mal Song in distance. Can't tell of phrases have Intros or not. NOCA.

Everything very quiet, except for babblers. Leaving 7:45 am.

Dakar,
October 18, 1991

I did not go out very much in the Casamance during the last few days. A drive back to Dakar, via the Gambia, today. Obviously, this is still the "off" season for Coraciiforms.

Coraci.

(d)

But I did note the obvious species, e.g. Blue-bellies, Abyssinians, Sen's, various hornbills in the appropriate places in passing.

Coraci

September 13, 1989
Zurich

Just arrived this morning. Weather is beautiful, but rainy season is in force in general. Everything looks very green.

Nothing of interest audible from hotel

Terrible downpour 5:15 p.m. Just as we are preparing to go out.

September 14, 1989
Zurich

Terrible rain storm ca 1:15 a.m.

Leave hotel 6:30 a.m. Rain stopped but everything dripping

6:43 Leaving town by road to Magnis. Hear songs by 2 fens.

Intro Notes and Rattles

No more relevant sounds along road

Reach Magnis site 7:07 Lots of miscellaneous bird sounds but no obvious Coraciiforms. All pond is grown and silted up.

7:25. Past Mango trees which are full of Mals at times. Quite silent now.

7:30. Straggling flock of long-tailed birds flies into mixed grove with many oil palms. Probably Puffins. Environment is right. I can't see white in wings but the birds are silhouetted against sky. Quite silent.

7:50 Going back to town. Find single fen 15-18 ft up on wire. Sings again and again and again. All songs quite simple and typical. Single Intro plus descending Rattle. This bird stops. Preen. Hear another fen in rather far distance. Note: fen songs are loud. NOCA

7:58. Further on grove trees by houses. Some Mangos. Hear single Mal singing repeatedly. Intro followed by 5-7 notes. NOCA

8:03 Still further on. Hear Yellowbill NOCA

Coraci, Sept. 14, 1989, II.

(2)

8:12. Single Sen Singing by hotel. NOCA
Very gray all day. Go out to walk around town 5:30 p.m. Very hot and
humid. Not a breath of fresh air. Only the storks are moving.
Stop 6:05 p.m.

September 15, 1989
Zuignichor

I did not go out this morning. But, ca. 8:20, hear typical
Mal Song near hotel

Lots of rain at midday. Then just sullen clouds and heavy
humidity. Then more rain ca. 4:50 p.m.

So far, the rainy season this year has been very wet indeed.

September 16, 1989
Zuignichor

Going to White Road this morning. Nothing relative to Coraciiformes
heard along high way. Arrive approximate site where group of Bluebellies
(BB's) seen last time. Already quite light 6:40 a.m. No rollers visible or
audible near

Purpurs around. Some Chattering.

6:48. See 3 BB's perched 20 ft up top dead tree. Preening. Silent.
Hear hornbills vocalizing not far away. Presumably Redbills.
A few minutes later, BB's have gone. Silently.

Lots of Redbills. And vocal NOCA

Presumed Blackbills in distance NOCA

Start down usual side road 7:00 a.m. Fairly quiet on the whole.
Redbills the only exception. They are still NOCA

7:10. Flock of 3 Purpurs flies by silently. Then I hear lots of
Purpur Chattering in distant scrub.

Coraci, Sept 16, 1989

(3)

Group 3 *Parapero* flies into Kad. Silent. Then chatter while perched. Then fly off silently.

NOTE: Kades are quite baffles now.

Redbills have fallen silent 7:25.

Some bird is giving repeated stereotyped songs. 3 or (more frequently) 4 Whistles followed by brief descending Rattle. Is this Striped Kingfisher? In any case NOCA. This is area where Strakes were found on earlier trip.

Single bee-eater feeding from low bushes. Apparently dwarf species *M. pulchellus*.

7:30. Suddenly hear burst of approximately 8 "Kee-kuw" phrases from distant tree. I think that this is the real Straked NOCA.

Blackbill sound in distance NOCA. Again No. Then Yellowbill Song. Partial overlap. Yellowbill continues. NOCA. Then stops. Blackbill resumes NOCA. Then stops. Redbills sing. Blackbills and Redbills partly overlapping. Not quite at random. Slight traces mutual inhibition. Then everything quiet again. 7:46.

It is just conceivable that hornbills are partly in reproductive condition now.

Straked still quite silent. Then a bunch of phrases in distance. 7:51. NOCA.

More Blackbill Songs. Full performance with wing movements. NOCA. Single bird perched 35 ft up dead tree.

Starting back down road. 7:55.

See single BB same tree as earlier this morning. Silent. Does feeding pounce. Silent. Back. Silent.

Straked sings nearly NOCA. Stops.

Blackbills sing in distance. NOCA. Stop.

Osus pair of Yellowbills fly by. Silent.

BB still sitting. Silent and alone. Looking down into peanut field.

Back at highway. 8:05 NOCA. Most phrases typical. A few with

Coraci, Sept. 16, 1989, III.

(4)

double or triple Intros —

Bird sings phrase after

phrase in succession. Seems to be highly

motivated

Abyssinian Rollers seem to be almost or completely absent from region now. Not surprising.

I still cannot figure out the note of Coracias naevia.

On way back to hotel, going through what used to be mangrove swamp, see 9 ♂ and 1 ♀ Pied on wires. Not together.

NOTE. Observations of BB's this morning, such as they were, suggest that members of a family (still) roost together but feed separately.

September 17, 1989
Ziguinchor

Road to Ossonge. 6:15 a.m. Arrive site where Leres, Mal etc were studied last trip. Still dark.

Miscellaneous bird sounds. As dawn choruses, all rather weak.

Ca. 6:20. Hear bipartite vocs by several birds both sides of road. There might be streaks, but I rather doubt it. Do not continue over bridge. In any case NOCA.

6:26. Mal sings several phrases. Typical. NOCA. Then Sen begins to sing across road. Interjects a few single phrases now or then between Mal phrases. Only very partial overlaps, if any. Then both birds shut up.

NOTE. Both birds are at sites, in trees, where birds of the same species sang during last visit.

Sen starts again 6:33 NOCA stops.

6:41. BB-type Chatter (really pumping) from tree by mangrove. NOCA. Not repeated.

Rather more DC 6:45. Fully light now.

6:53. Purpur Chatters from same grove of palms that the species favored last time.

Coraci, Sept. 17, 1989, II.

(5)

Not a sound of a hornbill so far 7:00 a.m.
See single Pied perched in mangrove. Silent
Then single Mal perched 6-7 ft up dead tree edge mangrove. Also
quite silent. Looking down and around. Flies off silently.
More Purple Chatter in distance. As usual NOCA.

7:06 First Blackbill song in distance NOCA Then one Sen
phrase from different area. NOCA More Blackbill song NOCA
Single Blackbill flies by overhead.

NOTE My terminology is not always the same during different
trips to Senegal. So far, on this trip "BB" refers to Blue-belly (not Black-
bill).

7:10 Redbills singing in distance. NOCA.

More Blackbill songs, Purple Chatters. All NOCA.
Single Pied flies by silently.

7:35. By car again. More Sen songs. NOCA
Sen singing 20 ft up top electric pylon NOCA No special movement
to NOCA shuts up. Flies away silently.

Starting back toward town 7:50

8:45 Back at hotel. Hear Sen songs from nearby park.

COMMENT. The local species, at least the kingfishers, hornbills
and woodhoopoes occur in the same habitats, even sites, as their consp-
ecifics during my last visit. Perhaps the greatest apparent peculiarity
is the rarity and/or inconspicuousness of Blue-bellies.

September 18, 1989
Ziguinchor

I do not go out today. Terrific storm in afternoon.

O goes to Falmere. Coming back 6:20 a.m. Along highway, app-
roaching White Road. Sees 7 Blue bellies perched on wires, approximately

Coraci, Sept 18, 1989, I.

1 m. apart. Obviously gathering to go to roost together.

September 19, 1989
Zuignichor

Rain in morning. Clears up around mid-day. Then travel arrangements go floory in late afternoon.

September 20, 1989
Zuignichor

Trying to get to Katunong this morning. Start from hotel ca. 8:50 a.m. Hot and humid.

NOTE. There are very few Birds visible around mangrove swamp.

A single Bluebelly flies across road as we near Bignona.

Both Blackbill and Redbill sounds in distance.

Group of 4 Yellowbills fly over road in forested area. Very noisy. One swoops at the other.

10:05. Forest before Katunong. Blackbills singing in distance. NOCA. Then Mal sing nearly partial overlap. Then silence. Then Stretched sing. NOCA. Stops. More Blackbills. NOCA.

Arrive Katunong ca 10:30. Hear Redbill NOCA. Stops. Then Black. NOCA. Stops.

See singing down by rice fields. Phrase after phrase. All quite typical, with single Intro, then descending Rattle.

10:59. Single Bluebelly in Kade over rice field. Uttering two or three Rasps. NOCA. Then single Rasps in flight. Then utters Rasp (not really rattling) - then after pushing in another Kade. Falls silent.

Then Purple Chatters. NOCA.

Blackbills in distance. NOCA.

Another area. Roller Swings in distance. NOCA. Stop.

Coracias, Sept. 20, 1989, II

(17)

NOTE. The local kids have been looking at my field guide (Serle and Morel). They recognize the Blue belly immediately. But apparently not Haerica Blue belly must be dominant species of Coracias here.

Stop observations 11:50 a.m.

Go out again 1:30 p.m. Lots of Purple Chatters. This species is (still) fairly noisy at this season. See also below.

Everything else except parrots is certainly quiet.

Stop shortly before 2:00 p.m.

2:20 Back at compound. While burst of typical Sen songs. NOCA

COMMENT. Obviously this is not the height of the breeding season for any of the local Coraciiforms. Possibly the hornbills, the Purpurs, and the kingfishers of the genus Halcyon are just beginning (or just finishing). But I doubt it.

Ca. 3:13 Another burst of Sen song by compound. Obviously single bird. No "replys" NOCA

Nothing of interest on way back to Ziguinchor 4:00 - 5:00 a.m.